PRIFYSGOL ABERYSTWYTH UNIVERSITY

# New dialogues with the Ocean as a recreational diver

## Case study: Ocean Literacy in Mallorca, the Balearic Islands, Spain.

Thesis submitted in fulfilment of the requirements
of Doctor of Philosophy degree

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May 2019

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Word Count of thesis: 95,625 words

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# Abstract

Pablo Neruda said that ' *I Need the Sea Because It Teaches Me'* and after time, science proved him right. Oceans are of great importance in ecological (climate regulation, biodiversity) and societal (economic activities, environmental services, and residence) terms. Healthy oceans are therefore fundamental to achieving global sustainability. The European Union has identified 'blue growth', or the sustainable use of the oceans, as a core societal challenge for its research programmes (e.g. Horizon 2020). However, at present, we still have a challenge to promote ocean literacy in order to help citizens understand the influence of the oceans on our lives and the impacts of our behaviour on it. Following this approach, an educational movement, called Ocean Literacy, started over 10 years ago in the USA. The main stimulus for this stream was the recognition of a clear absence of marine knowledge within the general population (Aqua TT, 2015). In this sense, given our dependence on the health of the ocean for a wide range of ecosystem services, the '*meaning*' and '*attachment*' to the largest ecosystem on Earth must be assumed extensively by various sectors. As a key interface, marine tourism has a key role to play in achieving this.

Tourism research of twenty first century is defined by the motivations, behaviours and choices of the travellers due to the fact that recreation, at present, is based on the experience (Holbrook & Hirschman, 1982; Álvarez Sousa, 2004). As a result, within the context of the Experience Economy (Pine & Gilmore, 1998), *'place meaning'* contributes to the value and significance of the setting through the cognitive concepts or/and beliefs of the individual (Stedman, 2002). Concurrently, the *'place attachment'* reflects the degree of bond to the setting (Kyle et al., 2003). Regarding this, the present study asks, how can underwater marine ecotourism contribute towards the place-based marine environmental awareness through Ocean Literacy? To answer this main question, an ethnographic study with emic perspective was implemented in a case study in Mallorca (The Balearic Islands, Spain). The fieldwork was conducted during six months (during the tourist season of 2016), using participant observation and semi-structured and unstructured interviews with divers, staff and the potential stakeholders network (science, government, NGO's, and professional associations).

The scenario identified was an industry involved in a transitional period. It is suggested that this is due to the fact the activity is still conducted as a '*sport'* but where the tourism is now the main client. At the same time, the experience is based on 'what you see' but without a systematic transfer of knowledge, and where the staff are poorly trained in heritage interpretation and communication skills. Consequently, the entire structure loses the opportunity to connect the divers to Mediterranean Sea through a '*sense of place'.* Nevertheless, suitable conditions for further development are present: motivated staff; a clear demand of ocean knowledge from tourists; proper facilities; and an active network of knowledge production close to them. As a result, the study suggests a structure to put in place an Ocean Literacy stream in the current recreational diving industry in order to contribute to the aspiration of improved global ocean citizenship.

Key words: Ocean literacy; ocean citizenship; recreational diving; marine stakeholders; sense of the place; environmentally responsible behaviour.

# Conference presentations

Garcia, O. (2018) Challenging the climates of change in scuba diving- towards ocean literacy?. **6th International Adventure Conference**: **Climate of Changes. Rethinking Adventure Experiences of Adventure Tourism Research Association (ATRA).** Valsaín – Segovia (Spain), 30th January -2 nd February 2018

Garcia, O. (2017a) New Dialogues with the Ocean as a Recreational Diver-Case Study: Mallorca, the Balearic Islands (Spain). **VII Critical Tourism Studies Conference (CST): Understand tourism - Change tourism; Understand ourselves - Change ourselves.** Palma Mallorca (Spain), June, 2017. **Awarded *Annals of Tourism Research* Best Student Paper**

Garcia, O. (2017b) Recreational diving as a vehicle towards Ocean Literacy. Case study: Mallorca, The Balearic Islands (Spain). **9th International Congress on Coastal and Marine Tourism (CMT)**: **Global challenges local solutions**. Gothenburg, Sweden, 13-16 June 2017.

Garcia, O. (2016) Recreational diving as a vehicle towards Ocean Literacy. Case study: Mallorca, The Balearic Islands (Spain). **Annual Conference of Association for Tourism in Higher Education in UK (ATHE) -** PhD Colloquium. Cardiff, December 2016**. Awarded *The favourite PhD Colloquium presentation.***

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# Buddies of this dive

## Acknowledgements

This is the place to say THANK YOU with capital letters. When you are involved in a challenge for four years, you have to so much gratitude for so many people. For that reason, to begin, I want to show my eternal GRACIAS (because my soul speaks in Spanish) to everyone who has written this chapter of my life with me.

I have to start with Mallorca, a place that surprised me so much and made this research study possible. A place which was unknown to me and now is part of my heart forever. How the diving centres embraced my project and I must be acknowledged, so, *Moltes gràcies per tot* for all the hours shared, knowledge exchanged and the *'wetsuit talks'*. The list could be endless so, please, feel my massive appreciation. However, some people must be named because of huge contribution of this 'local blue gaze'. Miquel, Roberto, Oscar, Aitor, Grace, Hector, Lucas, Miguel, Jasmine, Ayelen, Carolina. Thank you for showing me Mallorca waters! During my interviews I found two 'similar souls', Laura in science and Ana in outreach. Girls, our connection was critical for the development of the fieldwork. I hope we can work together soon. And to complete this walk through my *'Mallorquin experience'* I have to include my new sister, Aina. Thank you for opening your home to me and sharing your island with me.

The following place to stop is my other home, Abersytwyth. The place where this research study was designed, reflected upon and completed. Paraphrasing this thesis, Aberystwyth it is a place with strong attachment and meaning to me. In these four years I have to say *Diolch* to many people as well. The University partners have a special place in this list: the staff of the Institute of Business, with Julia leading the team, a huge *Diolch yn fawr iawn*! for your support in this academic journey. My PhD mates have been also good company in this journey. Rhiannon and Denitsa, thank you for all the help and laughs. This session of thanks could not be completed without showing my most sincerely gratitude to my multiple supervisors. Prof. Brian Garrod, thank you so much for sharing your teaching with me. It was a truly pleasure to be at class with you, *Diolch*!. Dr. Tiffany Low, I feel that you were always there for me, a person whose door I could always knock on. Thank you for that. And last but

not least, my main supervisor, Dr. Carl Cater. It is difficult to express my gratitude to you. As you told me, we are two people with different languages (ways to see the World) but who found common words to grow. *GRACIAS* for teaching me so much. *El mejor jefe que puedo pedir.*

Regarding the language matter, taking into account that I am not native speaker I have to say thank you to Dani, Brian, Rob, Beck and recently to my Aussie sister, Jessica, whose edition of this thesis has been decisive, for the lessons about English grammar over these four years.

Aberystwyth has been also a place where I have found good friends to spend evenings and hike with, and from which this thesis has greatly benefited. Odin, Alberto, Ederra, Morgan, Marcelo, Gabriela, Dani and others, *Mila esker* for these ginger beers and Pilar, *Neska*, *tu sabes que sin vos, estos años hubiesen sido menos divertidos. Gracias por todas esas conversas.* This place has also given me a Welsh family who have made me feel at home. *Diolch* Edwards family!

And lastly, the most special mention of these acknowledgements is to my family and friends who are the motor of all of my actions. They are my deep force to reach all of my aims and their love and support are so present inside of me that all of my works carry pieces of them. I don't want to say names; they know that they are part of my soul.

**Gracias por estar ahí**.

That's all. See you around.
Olgaki

# New dialogues with the Ocean are required


Figure n. 1: Fieldwork, summer Mallorca, 2016

Marine wildlife tourism depends on the use of specific natural resources. However, the lack of knowledge about many species and ecosystems and their vulnerability and resilience are still a threat to sustainability. The rarity, uniqueness, condition, interactivity (e.g., curiosity or other animal behaviour), size and history of exploitation are each integral to ecotourism. Therefore, an increasing number of tour operators invest in developing better knowledge of natural resources used in tourism (e.g., ecology of whales or bleaching of corals). With free access to their tours by scientists and research institutions, tour operators have become a valuable partner in the dissemination of marine knowledge (Hoyt 2008). As a result, some tours have become real 'floating classrooms' to learn about the sea. At the same time, the ´veterans of the sea´ talk to us about an ancestral bond with this vast space. Small stories told *on board* which draw the near and far seascapes in our mind. Hence, how we can extend this ocean literacy to marine-based tourism is the challenge to become active partners in this connection.

# Chapter 1. Introduction

## *From passive to active observant divers*

Each year, the coast is chosen by waves of tourists to spend their holidays, but many do not notice that they interact with the largest ecosystem on Earth. As a consequence, every summer, at least one piece of news (WDC, 2016) about a marine animal being harmed through human negligence is in the press, as happened in a Spanish beach in 2017, ´*Baby dolphin dies after being passed around for selfies with tourists*´ (Baynes, 2017).

In the era of social media and selfies, our relationship with nature is under transformation, on many occasions with unpleasant consequences. Named the ´missing context´ by blue humanities (Buchanan & Jeffery, 2017), the Ocean suffers of the dearth of marine knowledge due to the lack of interest by the formal educational system, those is defining this relationship with our seas. However, in parallel, the blue space is being recognised as a vital resource for industry and business by European Union. In this new gaze to the sea, tourism has been become one of the biggest interested. A growth in experiential tourism can reverse this empty relationship through authenticity and environmental commitment on the part of visitors.

To that end, the knowledge about this interface between human beings and seas in the recreational context needs to be improved. Informed by recent work on Ocean Literacy, the research effort of this PhD tries to fill part of this knowledge gap in the information framework of scuba diving activity.

The Ocean Literacy is an educational stream - developed by educators and scientists - in order to provide a basic framework of marine knowledge to the education system. Started in the USA in 2005, at present this framework is part of outreach programs by high profile organizations on both sides of Atlantic Ocean. This chapter goes deeper into this approach later on.

In the same line of thought, the ocean citizenship is revealed as purpose of this literacy effort. However, it is important to clarify that the study analyses the transfer of knowledge

addressed towards that ocean citizenship, but at this stage does not extend to change behaviour. The ultimate objective is to lay the foundations through better knowledge system in the diving industry to its future triggering. To achieve this aim, this thesis has seven chapters exploring the key elements of this disconnection with the Ocean in the tourism space. The storyline reveals how a better understanding of Ocean in our lives impacts on the tourism experience in a positive way; and provides the ground for the environmentally responsible behaviour. The study is based in Mallorca, Spain as the place to talk with the ocean's users; the educational stream of Ocean Literacy stream is the main chosen approach; and recreational scuba diving is the channel to reframe the narrative with the sea.

1. The storyline starts with an introduction of the 'big picture' to understand the research direction in the first chapter.

2. The second chapter establishes the theoretical background of ´this selfie´ of human beings with the sea as backdrop with theories about motivations such as Recreation Experience Preferences (REP) of Manfredo et.al (1996); transfer of knowledge such as persuasive communication through TORE framework of interpretation (Ham, 2013); and the environmental responsible behaviour (ERB) by the theories like Model of Recreation Experience (Ballantyne et al., 2011) and Theory of Planned Behaviour (TPB) (Azjen, 1991).

   In this study, the sources of knowledge have been the key in understanding the structure of the diving phenomenon. Divers, tourist-divers, diving staff, diving certifiers, scientist, activists, governmental officers are just some of the stakeholders consulted. Hence, multiple voices are the base of the present document. However, the research is also influenced by the massive success of *Blue Planet II*, the last documentary series of BBC. As a result, the marine environment has experienced a growing public support – receiving the 'Impact' award at National Television Awards 2018 and an increasing of environmental budget by the British government (GOV.UK, 2018) - and hence, a greater empathy for this type of research. Equally, taking into account the poor interest in marine knowledge in the education system, the societal imagery of ocean usually are fed by the channels more accessible for the public: media and social media. For all of

these reasons, this study has also included information and messages – with the confidence that they are scientifically supported - from these documentaries in order to show that the marine knowledge is widely available.

3. The methodology and the research design come within the third chapter, identifying the research questions. The general question is, *how can underwater marine ecotourism contribute towards the place-based marine environmental awareness through the Ocean Literacy?*; being divided into,

    - *How is Ocean Literacy evidenced in underwater marine ecotourism at present?*
    - *What is the tourism stakeholder framework for developing an effective Ocean Literacy strategy?*
    - *How should an underwater marine ecotourism product develop the Ocean Literacy approach?*

These research questions are the guideline of the second section which is subdivided into three chapters to approach the exploratory and descripto-explanatory phases of fieldwork and their subsequent analysis in the framework proposed.

Six months in Mallorca were the time to answer the research questions using ethnography. More than one hundred and fifty interviews and many shared hours with social actors allowed me to uncover the diving scenario for Ocean Literacy approach with the purpose of the ocean citizenship.

The staff and users have been interrogated about the type of marine knowledge and place meanings and attachments to the sea through questions such as *´what does Ocean mean to you? ´.* This exploration has been carried out within the qualitative perspective with the goal to achieve a deeper understanding. It is an approach which allows understanding new categories or variables emerged constantly - the perceptions, meanings or social constructions - due to the dynamic character of the relationship between nature and human beings. While it is true that the qualitative studies have barriers to generalisation of the population, the lack of knowledge in this area required an exploratory design.

4. This phase of the exploration allowed that the first question was approached in the fourth chapter, seeking evidence about the combination of diving and marine knowledge towards the commitment with the blue space; *how is Ocean Literacy evidenced in underwater marine ecotourism at present?*

5. Subsequently, the descripto - explanatory phase, developed in the fifth chapter focused on the framework and basic conditions to bring the Ocean Literacy & citizenship approach to diving, gathered in the second question; *what is the tourism stakeholder framework for developing an effective Ocean Literacy strategy?* The exploration provided the ground for the explanation which describes the 'story' in a more holistic way.

6. Finally, the knowledge built led to a conceptualization of a model (and toolkit) for a diving product with Ocean Literacy & citizenship approach in the third question, contained in the sixth chapter; *how should an underwater marine ecotourism product develop the Ocean Literacy approach?*

7. The intensive work in the waters of Mallorca produced some impacts on diving centres of the study which are shown in the final seventh chapter, as well as the conclusions of the research. Sense of the place becomes a key concern for recreation in blue space for all users to develop a feeling of belonging and mutual responsibility.

Photo credit: Soller divers. Mallorca, 2016

*'Our oceans need to be heard, appreciated and understood.*
*Scuba divers will always tell their story'.*
(North, 2016)

This first chapter starts by introducing the main actors of the research study to define the frame of the study action and justify the need for its combination. Ocean Literacy is shown as the stream which guides the entire analysis due to its versatility to integrate the marine literacy in a non-formal education setting. The Ocean is chosen as the stage for this knowledge transfer because of the importance to develop the attachment to the macro-ecosystem which keeps us alive. As the vehicle of that dialogue, the recreational diving which represents the tourism sector which can contribute to bring the Ocean to our lives. Therefore the rapid growth of scuba diving is also examined, its institutional structure and its affiliation with global tourism patterns.

This lays the foundations for a dive trip enriched with stories about the local sea which awakes our willingness to commit to the blue space examined in the remainder of the thesis.

## 1.1 Ocean Literacy; discovering the Blue planet for a healthy Earth

*Ocean literacy is an understanding of the ocean's influence on you —and your influence on the ocean*.
Ocean Literacy Campaign, 2013

The sustainable use of marine resources depends on an understanding of the influence of the ocean on human lives. Life on Earth is inextricably linked with the 'blue' part of the planet. This indisputable fact - which will be demonstrated in this this chapter - has become the main premise of marine environmental education. However, there are still many citizens who do not have a clear relationship with the Ocean. Their daily routines do not reflect any connection with the seas, probably due to growing urban sprawl and increasing mechanisation (Forestell, 1993). Indeed, modern life is being developed to turn our back on the nature. The same author argues that these 'non-natural' surroundings could become a factor against understanding the environmental impacts of human actions. Despite this, our decisions and acts have huge influence on the marine realm (witness the recent debate on plastic pollution). However, unlike what happens on the terrestrial landscape, the destruction of the seas usually is hidden under the waves. Therefore, the current challenge is to put a value on marine Nature and build the capacity within society in order to reinforce the pairing of 'value-action' (Aqua TT, 2015).

Human activity on coasts has been a key input to the economy for many populations. However, due to the importance of the ocean to this activity, its exploitation has become a vital concern. Agriculture, human settlement, fishing and industrial activity (Hall, 2001) are responsible for pressure on the coastal fringe and the consequences of its overuse. However, nowadays, the pressure goes beyond the land uses. The new marine dynamic gives rise to an additional wave of pressure through popular activities such as marine tourism. Over the past half century, 'sun, sand, surf' has been the formula to develop tourism on the coast and the frontier has been moved to encompass the entire marine ecosystem within the leisure activity. The Ocean is now the host to the fastest growing areas of contemporary tourism (Hall, 2001). Sport fishing, scuba diving, windsurfing, and yachting

and obviously the cruise industry show significant increases. Its exponential development interferes with the highly dynamic ecosystem of the marine realm described above. As a consequence, the environmental impacts can affect the whole Ocean and generate severe consequences for the long-term stability of the environment (Hall, 2001).

The proper governance of the Ocean relies upon effective integration of all stakeholders' interests (Fletcher & Potts, 2007). This process is described as the 'imperative of integration' (Fletcher & Potts, 2007). Experience all over the world suggests that any particular area or sector cannot be managed in isolation. The marine context, especially the coasts, is not an exception. They are complex and dynamic areas where the environment, economy and society interrelate. Therefore, environmental problems, human behaviour, participation in environmental decisions, and citizenship are linked (Buchy & Race, 2001). Life choices affect the marine ecosystem and vice versa, as human life is influenced by the ocean forces and conditions (e.g.: oxygen exchange). Therefore, the more thoughtful the actions taken that affect the marine ecosystem; the fewer impacts will be felt on human lives and the marine environment. For this, personal involvement has to evoke the sense of global stewardship and its subsequent responsibility.

Ocean citizenship encompasses the entire geographical scope from the coastal to deep-sea marine areas. In this respect, Bell (2005) emphasizes that the geographical characteristics and location of individuals or societies in relation to the coast are relevant. This exposition defines the personal relationship with their surroundings as a key precedent to encourage the eco-friendly behaviour (Ballantyne et al., 2011b). Consequently, geography acquires a key role in a connection between ocean literacy and behaviour change. However, on the other hand, the impact from an individual's choice can directly affect the ocean or indirectly through the use of ocean resources or services. This means that the Ocean environmental issue usually deals with a geographic scale greater than where individuals or even nations operate, such as climate change and ozone depletion. In this connection, the understanding of the interfaces between 'ocean-people' and 'land-sea' must become a priority.

Regarding this understanding in the education system, research studies about the effect of ocean sciences in the curriculum have revealed that the aquatic sciences play an important

role in understanding global and complex systems (Lynn et al., 2010; Lambert 2006). In other words, the fluid nature of water fosters system thinking within students, building the big picture (e.g: understanding Climate Change). Ironically, however, the Ocean and aquatic sciences are poorly represented in Earth sciences within curricula of many countries (Lynn et al., 2010). Likewise, practical know-how about the dynamics of local-global interaction has been another pending task. The change of behavioural patterns requires that individuals can understand how to participate in the solutions for improvement, to ameliorate or remove impacts (Uzzell, 2000). This knowledge is vital to avoid individuals becoming disheartened or abandoning a course of action because they do not see their contribution to solving global environmental problems. In this sense, proper access to education, information and opportunities for meaningful engagement are the manners to include citizens into the participative marine governance strategies (Steel et al., 2005; McKinley & Fletcher, 2010; Castle et al., 2010; Roth, 1992). A better understanding of our oceans is the best manner to encourage the general public to place pressure on politicians, through democratic channels in order to face environmental concerns. In this way, both the individual action (Devine-Wright et al., 2004) and joint committed decisions would get over the geographical scale. However, there cannot be a proper understanding without a solid and update marine knowledge.

The job of educators is crucial, putting value into educational settings as sites to build a new marine culture. The level of public literacy and awareness regarding the oceans is generally low (McKinley & Fletcher, 2010; Fletcher & Potts, 2007; Fletcher et al., 2009; Steel et al., 2005). A high degree of public concern for the marine environment exists, but this is not accompanied by a proper understanding among individuals of the relationship between their own lives and the marine environment. This constitutes a major barrier to meaningful public involvement in sustainable marine governance.

Stimulated by the recognition of this clear absence of marine knowledge within the general population, an educational program called Ocean Literacy, started over 10 years ago (with the first publication in 2005) in the USA. The inadequacy of lay knowledge set in motion hundreds of marine educators and scientists led by The National Geographic Society, the National Oceanic and Atmospheric Administration, the National Marine Educators

Association, the Centres for Ocean Sciences Education Excellence and The College of Exploration. This literacy Campaign developed seven fundamental principles (explained by 44 Fundamental Concepts) which became the centre of the Ocean Literacy stream (EMSEA, 2018).

1 The Earth has one big ocean with many features.

2 The ocean and life in the ocean shape the features of Earth.

3 The ocean is a major influence on weather and climate.

4 The ocean made Earth habitable.

5 The ocean supports a great diversity of life and ecosystems.

6 The ocean and humans are inextricably interconnected.

7 The ocean is largely unexplored.

Three statements define the Ocean Literacy approach. First, the ocean is a public good; therefore its current health must be a concern for the entire society. Secondly, individual behaviour has an impact on the environment. Shared commitment and action can confront the global challenge. Thirdly, the personal connection is associated on individual geographic terms (locally vs. globally).

The main target for this program to date has been the students of the formal education system. Its aim is to communicate the importance for taking responsible decisions about marine ecosystems and their resources (Change, 2015). Subsequently, this guide has been used as an inspiration source to design other science literacy guides (e.g., climate and energy), exhibits, courses, and instructional materials (Ocean Literacy Campaign, 2013). For example, the prestigious Smithsonian Sant Ocean Hall (SOH) of the Smithsonian Institution Museum of Natural History incorporated the Ocean Literacy Principles as a guide for all its public and educational programs (for visitors, students, and docent training). In 2013, a review of the campaign was carried out by the original group of scientists and educators plus additional experts. Some geographical regions were active in this regard including Latin America led by Chile with the translation of the guide to Spanish and Europe defining the ocean literacy concept through marine educators in the organization called European Marine Science Educators Association (EMSEA). However, as was shown in the study of McKinley & Fletcher (2010) about the British marine education, Europe manifests the same lack of proper ocean knowledge by society as the Americas.

Research suggests that the European citizen is not aware of the importance of the Ocean in their lives, the valuable ecosystem services provided, and the influence of their lifestyle on the entire marine domain: *'(…) from food to energy to weather and climate to international trade to the air we breathe. The ocean must be a part of every student's education*' (Craig & Tuddenham, 2012:9). Therefore, Ocean Literacy in Europe has the objective to spread knowledge regarding the key role of the Ocean in human life. As a result, an Ocean-Literate person will be considered one who understands the importance of the ocean to humankind; can communicate about the ocean in a meaningful way; and is able to make informed and responsible decisions regarding the ocean and its resources (Aqua TT, 2015).

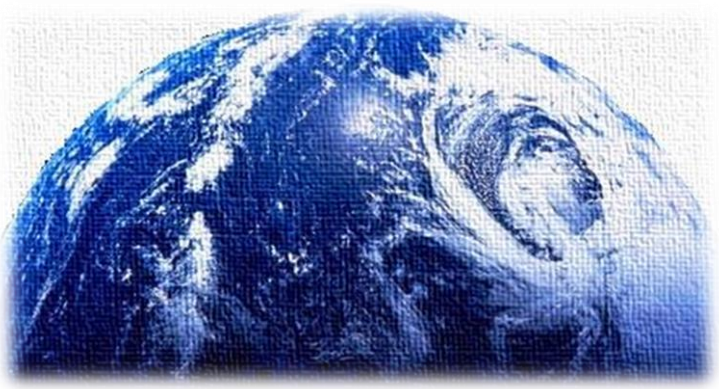
As a suitable partner, Education for Sustainable Development (ESD) (Combes, 2005) has created the foundations for all these approaches with its key shift from ´*about* sustainable´ existing to date, to ´*for* sustainable´. This preposition meant a change of mind-set with the turn of the new millennium. It is a dynamic concept which empowers people to face the key challenges of living in the twenty-first century. In fact, Combes argues that ESD 'instils in learners that ability and will to integrate sustainable living practices, for themselves and others, in their daily lives' (2005:218). To achieve sustainability, well-informed citizens are the strategy toward success (Court, 2012). Environmental literacy, and thus Ocean Literacy follows this line of thought: '*one of the key messages is the relevance of the marine environment to our everyday lives, irrespective of where we live' (and to) ... explain the need for action (lifestyle changes, etc.) ...*' to the general public (The Wildlife Trusts, 2005). The same strategy is supported by marine educators in the UK interviewed by McKinley & Fletcher (2010). Higher levels of marine environmental education would engender the development of awareness and subsequently, a sense of marine citizenship.

However, the ocean presents a complex challenge due to a multifactorial dynamic. This means that the study has to apply more than one perspective to its understanding. A wide network of stakeholders with solid scientific evidence is a sustainable way to approach the marine issues, as fishing stock management has proved. This holistic approach invites all stakeholders and disciplines related to the Ocean to create a grid of knowledge transfer (Craig & Tuddenham, 2012), including the traditional knowledge of communities. This gauntlet has already taken up, in 'Ocean Literacy for All', a manual, a product of a joint effort between UNESCO and its Intergovernmental Oceanographic Commission (IOC). Under

the umbrella of the 2030 Agenda for Sustainable Development, the United Nations has a responsibility to implement the 17 assumed goals (SDGs) set by the international community. Goal 14, *to conserve and sustainably use the oceans, seas and marine resources,* urges countries towards restoring the healthy conditions of the Ocean. In this context, the UN Ocean Conference held in New York (June 2017) made a call to all stakeholders to *´support plans to foster ocean-related education […] to promote ocean literacy ´* (UNESCO, 2017). The result was this toolkit which shows the necessity for ocean literacy in classrooms, boardrooms and governmental institutions. In accordance, the European Union has identified 'blue growth', or the sustainable use of the oceans, as a core societal challenge for its research programmes (eg Horizon 2020). Regarding coastal and ocean tourism, the research addressed the potential contribution to environmental, economic, and social change on the coast. A central pillar of this challenge is the promotion of ocean literacy, through which citizens understand the influence of the oceans on their lives, historically and socioeconomically, and the impacts their behaviour can have on marine ecosystems.

## 1.2 A liquid planet, called Earth

*´From creating the weather to producing oxygen,*
*the seas keep our world healthy´*
Blue Planet II – One Ocean
BBC One, November 2017



Space exploration in the 1960s modified the human perception of our planet (Stel, 2012). An image changed everything. Humanity saw, for the first time, the planet in its entirety, spurring the environmental movement. However, concurrently, something more revolutionary was revealed in the words of Arthur C. Clarke - the British science writer and undersea explorer - noting '*how inappropriate to call this planet Earth when it is quite clearly Ocean*.' (Roberts et.al, 2009: 210)
Our planet was blue.

Indeed, we now know that oceans cover some 71% of the Earth's surface (NOAA, 2018) or in other words, over two-thirds of the planet's surface is under water (BBC, 2001 a). The average depth of the oceans is 4,000 metres, but they are 12,000 metres at their deepest (Ocean Classrooms, 2015; NOAA, 2018), with much of it remaining unexplored. In fact, the Ocean has the highest peaks, deepest valleys and flattest plains on Earth (Ocean Literacy Campaign, 2013). **The Earth has one big ocean with many features (Essential Principles 1).** Being interconnected, it is in fact a single Ocean with different names: the Pacific; Atlantic; Indian; Southern; and Arctic. Being responsible for climate and weather (Ocean Literacy Campaign, 2013) and key species in the marine realm, like sea grass, which are pillars for high biodiversity, the Ocean is therefore responsible for all life on Earth (BBC, 2001 a).

The Ocean is an integral part of the planet's water cycle and is connected to all of Earth's water reservoirs by evaporation and precipitation. In this sense, its features of acidity,

salinity and temperature contribute to defining the global climate and weather. These characteristics allow the absorption of carbon dioxide from the atmosphere, becoming the largest reservoir of carbon on Earth. Indeed, the oceans store approximately half of all of the Earth's $CO_2$. This means that the Ocean dominates Earth's carbon cycle. This feature is crucial for many organisms that use this carbon dissolved in the Ocean to form shells, other skeletal parts, and above all for coral reefs. In turn, the balance of acidity (pH) plays an important role in the health of marine ecosystems and in the mechanisms of Ocean to adapt to changes in atmospheric carbon dioxide (Ocean Literacy Campaign, 2013). Likewise, due to its size, chemistry and strength, the Ocean shapes continents through the drawing of their coasts (forces of waves) and deposits of land materials (the origin of many tourist beaches). Therefore**, the ocean and life in the ocean shape the features of Earth (Essential Principles 2).** The story of the Ocean is a story of flow, movement, sedimentation, extraction and dissolution. The Atmosphere, Land and Ocean maintain a constant exchange of raw materials and energy. This one interconnected circulation system is boosted by wind, tides, the force of the Earth's rotation (Coriolis Effect), and the Sun and water density differences. Changes in this system define the climate (since last 50,000 years) with a strong impact on ecosystems at the same time (Ocean Literacy Campaign, 2013). Thus, **the ocean is a major influence on weather and climate (Essential Principles 3)**.

*'Most of the major groups that exist on Earth are found exclusively in the ocean and the diversity of major groups of organisms is much greater in the ocean than on land'* (Ocean Literacy Campaign, 2013:9). The Ocean is a vast living space with a wide variety of unique ecosystems in which everything from the smallest living organisms (microbes) to the largest animal on Earth (blue whales) have evolved. **The ocean supports a great diversity of life and ecosystems (Essential Principles 5).** However, the biodiversity provided by ocean ecosystems, due to abiotic factors - such as oxygen, salinity, temperature, pH, light and nutrients - has not followed a homogeneous distribution. As a result, the most abundant life on Earth is hosted in just a few regions of the ocean, while most of the ocean is 'empty' (Ocean Literacy Campaign, 2013), sometimes named the 'Big Blue'.

The marine origin of many species on Earth makes the connection with the Ocean an unavoidable link for life of the whole planet. According to science, *'half of the primary productivity on Earth takes place in the sunlit layers of the ocean*' (Ocean Literacy Campaign,

2013:8). The Ocean is the biggest provider of oxygen on Earth. Therefore, most of the oxygen in the atmosphere originally comes from photosynthetic organisms in the ocean (Phytoplankton). Following the food chain, it is an environment which provides high levels of nutrients for supporting vast biodiversity as much 'inside' as 'outside' of its waters. Thus, **the ocean made Earth habitable (Essential Principles 4).** As a result, its wide stock of consumable species (fish, seafood, algae etc.) directly and indirectly feed much of the human population (Ocean Literacy Campaign, 2013).

Nature is the provider; of shelter and a guarantee of life for human beings on Earth. The marine environment is of global importance in terms of ecosystem services. Marine biodiversity provides medicines, crops, fibres and organic products to humans. Specifically, the Ocean is also the main supplier of freshwater because most of the rain falling on land comes from the ocean. In turn, marine ecosystems generate services such as producing land; cleaning the water or creating oxygen. These multiple services have significant impact on human health. At the same time, more abstract benefits need to be recognized: spiritual and aesthetic effects have sociological impacts on local communities and visitors. *'The ocean is a source of inspiration, recreation, rejuvenation, and discovery. It is also an important element in the heritage of many cultures'* (Ocean Literacy Campaign, 2013:10; Cousteau, 2015). In addition, ethical reasons have recently acquired a priority position in the current debate about sustainability and the protection of the planet in terms of intergenerational equity (Barrington, 2000). **The ocean and humans are inextricably interconnected (Essential Principles 6).**

It is an accepted fact that the human being is the dominant species on the planet, with a huge power to modify their surroundings. With a global population of 7 billion reached in 2011 and a growth rate of 1.2% (82 million) per year according to the estimates of the United Nations (2014), this planet has to provide all the services demanded by a large and growing population. Consequently, where the human population is scarce, some pristine ecosystems on Earth and essential for life on earth are found. For example, the boreal forest hosts a third of all the trees on Earth with a powerful role to modify the weather (BBC, 2006). On the other hand, human society prefers the coast for their settlement due to numerous advantages such as communication routes (of goods and people), jobs, energy and food from the sea. As a consequence, it is estimated that half the world's population

lives on the coast, with three-quarters of all large cities located within 60 km of the sea (UNEP, 2015). This intensive pressure on a strip of land and its resources causes concern, particularly given the evident lack of marine knowledge by human beings.

In conclusion, the marine environment is characterized by its huge size and high diversity and defined by fluid boundaries. It is a realm unknown to humanity where human beings cannot live but at the same, they cannot live without. In turn, the Ocean is a pool of common resources in a scenario with blurry borders, overlapped competencies and weak international agreements. For that reason, it is often a victim of the Hardin's ' *tragedy of commons*' (Cater & Cater, 2007:5). As a consequence, evidence regarding its limited resources and the overloaded mechanisms of resilience are more categorical. At present, ocean acidification, which in turn is contributing to melting the calcareous part of sea animals such as shells; the invasion of plastic; overexploited fish stocks (overfishing); physical modifications of shores, beaches and rivers; and the raising of the temperature and sea levels, with resulting bleaching of coral reefs, are global challenges. The threats come mostly from human activity with consequences and impacts more than visible at the global scale. For example, overfishing has been responsible for the decline of around 33% of fish in the first place (FAO, 2018).

While it is true that change is part of life, providing opportunities to improve (Barrington, 2000), the transformations mentioned above are only the red flags of something bigger. Over last 50 years, the consumption rate of ocean resources has increased dramatically. As a result, the scientific world starts to support the denomination of a new era called Anthropocene, due to the domination of human activities (Court, 2012). Taking into account that the percentage of species without classification is still estimated to be high, extinction is a process which humanity cannot afford. While is true that extinction is part of the dynamics of Nature (five mass extinctions during the lifetime of the Earth, according to the fossil record), the last one was 60 million years ago. However, there are enough indicators to confirm that nowadays the planet is involved in a mass extinction crisis where the speed of this degradation is the main concern (Barrington, 2000).

Concurrently, the type of affected species should raise alarm. Although, every species belongs to a network, where the connections are the guarantee of survival for the entire

networked system, some of them, considered key species, are important pillars key to the survival or collapse of the entire system. In this sense, the extinction of the coral reefs may be considered the first mass extinction of an entire ecosystem on Earth. Hundreds of so-called 'dead zones' are found in the coastal seas and especially in front of the outflows of overpopulated rivers (Stel, 2012). In Europe, the Mediterranean is a clear example of this situation, and the Posidonia meadows, its iconic ecosystem to protect. *Posidonia oceanica*, is an important endemic plant in the Mediterranean basin, whose meadows show similar functions to terrestrial forests: as mitigating agent of climate change; coastal protectors; water filters; and a shelter of great biodiversity (IMEDEA, 2016). They produce more organic matter than the tropical forests and more than 10 litres of oxygen per m2 per day (RAC/SPA, 2017b). However, it is one of the most threatened ecosystems globally, with a reduction rate about 5% annually (Montes et al., 2012).

In summary, the systematic changes in the marine ecosystem are related to the Ocean becoming warmer; to the Ocean becoming bigger (ice melting, sea-level rise, and a shoreline in motion); the Ocean becoming more acid, and the ocean becoming more polluted. As a result, the Blue planet is getting bluer and less appealing for a wide variety of marine life (fish, cetacean, and corals etcetera).

However, the Ocean isn't always afforded this audit by society due to the lack of familiarity with the marine surroundings. Despite its importance at the global level explained above, educational and cultural production is limited. The seas have been seen to be traversed for centuries, cruising on its surface; laying on their beaches; flying over them, but rarely, entering it. Consequently, the Ocean has been called the 'forgotten space' (Buchanan & Jeffery, 2017), with the marine realm being omitted from the societal mind-set. According to the NOAA (2018), *'more than 95 percent of the underwater world remains unexplored'*. For example many animals from deep Ocean waters are still unknown for human beings (Barrington, 2000). Likewise, marine cartography is still in early stages with only around 5% accurately registered (Barrington, 2000). **The ocean is largely unexplored (Essential Principles 7).**

However, in recent years there has evolved a growing movement known as the 'blue humanities' (Buchanan & Jeffery, 2017) which tries to place a value on this macro ecosystem

in historical, cultural and socio-economic terms. As Javier Salaberria Urbe - editor of ' buceo XXI' magazine- remembers that before of the technological times, a sailor knew how to find the fish stock; a diver estimated the visibility with the smell of the sea. However, at present, the ability to observe the nature has been subsequent to seeking the answer in the technological devices. The land/seascape has been replaced by the technoscape. Nature is less well known than ever by first hand, however, as Higginbottom (2004) points out, Nature is more known in 'virtual' terms. Nature documentaries have shaped the collective imaginary about wildlife. These documentaries overuse technical artifices, making the visual narrative more spectacular. Partly as a result, nature-based tourism is on the rise. However, tourism offers an opportunity to observe Nature *'in situ'*; therefore it is a good context in which to write a new narrative. A starting point to gain this meaning is to be an active 'observer' again. Put the mask on and look at what's going on. As Doug McNeese – Chief Executive Officer of SSI - commented in the Blue Ocean Summit (2015), scuba diving activity sends out millions of observers of the Climate Change (Crisis), who, as witnesses of the massive changes underway, can become a powerful voice for the Ocean.

## 1.3 Recreation in the Blue Planet

At present, the sea is home to an increasing pool of marine leisure activities; most of them conducted over water, and only a few underwater. Academics have identified the significant growth of marine tourism activities in many countries (Garrod & Wilson, 2003; Cater & Cater 2007; Garrod & Gossling, 2008). Marine tourism is defined as *'those recreational activities that involve travel away from one's place of residence and which have as their host or focus the marine environment*' (Orams, 1999 cited in Hall, 2001:602). This definition - in contrast to coastal tourism - puts the value on the 'marine realm' which means the ecosystem is the resource used for tourism.

In an effort to describe marine leisure in figures, the picture can be understood in its economic context. According to UNWTO (2017), tourism generates a flow of 1.23 billion international tourists worldwide, with a forecast of 1.8 billion by 2035. Europe is the top destination with half of international tourists traveling within its territory - 616 million international tourists in 2016 with an expenditure of US$ 447 billion (euro 404 billion). This represents 37% of the global tourist income and is equivalent to the third largest economy in terms of GDP worldwide. This tourism is overwhelmingly focused on the coast. In Europe, coastal and maritime tourism is the largest maritime activity. The sector generates a total of € 183 billion in gross value added with a labour force employing almost 3.2 million people (European Commission, 2016). As a result, not only is tourism the biggest employer in the blue economy but its economic impact represents over one-third of the maritime economy in the region (The European Union, a).

As a key marine leisure activity, scuba diving is considered 'one of the world's fastest growing recreational sports' (Musa & Dimmock, 2012:1). The Professional Association of Diving Instructors (PADI) which operates in over 150 countries and territories around the world claims that they have certified 24 million divers globally since their foundation in 1967 (PADI, 2016). The World Tourism Organization estimates a turnover of 4.5 billion US Dollars in 2001 (Garrod, & Gössling, 2008). At present, the active diver population (recreational and sport) is approximately 15 million, of whom 3 - 4 million are European (ECORYS, 2013; RSTC-Europe, 2016). The European Underwater Federation (EUF) & Recreational Scuba Training

Council (RSTC) estimates that 70% of European divers dive in the Mediterranean region (Spain, Malta, Cyprus, Turkey and Croatia mainly) (ECORYS, 2013). Each year, 800,000 Europeans make one diving trip (with 10 night-stay on average), including 'diving cruises,' spending over € 1.4 billion annually. Concurrently, the RSTC-Europe (2016) translated this potential into € 190 million in revenues related to equipment, with an expected growth of 4 % (up to 2020).

This parade of numbers indicates that this cultural service has become a lucrative business. The price, in socio-environmental terms, is also high. A study carried out in the USA (Hillmer-Pegram, 2014) revealed that the resilience of the diving industry depends on understanding that the activity has now been accepted by mass tourism. The priority has shifted from a pristine ecosystem to an affordable experience.

This study emphasizes that the resilience of the diving industry relies on the ability of self-organization. This includes increased recognition of the concept of a blue-green economy, which will demand a mixture of physical, behavioural and institutional change. The self-advocacy structure and active relationship with stakeholders shows the degree of dynamism required by the industry to face current challenges (Hillmer-Pegram, 2014). The network of stakeholders can develop local management capacity, share lessons learned through outreach and education in order to establish successful ecotourism. In conclusion, knowledge is a critical factor to build resilience of the industry for change. In that same line of thought, the European Blue Growth Strategy - the maritime dimension of the Europe 2020 strategy - has been developed (Soediono, 2014). The scarcity of knowledge and lack of a rigorous database pertaining to the marine ecosystem and their economic activities shows that the maritime sector suffers from a lack of updated skills and innovation. This weakness, nowadays, means a 'dangerous' loss of competitiveness, affecting mainly the Small Medium Enterprises (SMEs). Consequently, the Strategy considers it key to *'help make the sector more competitive globally'*. To achieve this, the Blue Growth initiative - where the coastal and maritime tourism is in a privileged position - is focused on communication and promotional strategies; innovative management; improvement of data availability; and the promotion of ecotourism. Therefore, the state of the art of dive tourism research cannot be left behind.

### *1.3.1 Recreational diving for the challenges of 21c.*

Tourism is a dynamic activity which operates through a scenario of multiple goods and services. In this sense, Álvarez Sousa (2004) notes that tourism is a subsystem within the wider social system. As such, what happens in the social sphere impacts on tourism trends. At present, Western society is involved in a transition where individual needs are an indicator of societal changes. In early development, raw materials and the products created from them were the most appreciated by society. However, little by little the physical products were replaced by intangible elements such as services (education, health, etc.). The next advance, in which society is currently involved, is referred to as experiences (Álvarez Sousa, 2007: 238). This is called the fourth economic value of human history, where the emotional domain has achieved a primary position (Bordas, 2003). The path replaces technological rationalism and pragmatism towards valuing the philosophy of 'transforming yourself'. The industry of spare time is also impacted and involved in this new societal scenario with the post- materialist's values shaping demand and being influenced by the increasing hypermodernity. The current product of leisure activity is an offer of intangible and ephemeral consumption, focused on the experience.

Thus, holidays are not only for taking a rest. The new tourist profile contemplates new items such as 'growth up' or 'contribution' (Bordas, 2003: 7-8). A wide segment of society sees holidays as a way to enrich their lives with exciting experiences which could contribute to their self-fulfilment. The contribution to a noble purpose or common good is also the centre of some tourism offerings. This new demand has created the 'market of beliefs', meaning that a personalization strategy defines the new tourism products. As a consequence, their motivations, behaviours and choices redraw the tourism activity every day. This means the psychological characteristics of visitors become a significant area of importance for tourism of the twenty first century. Thus, current research challenges are focused towards the better understanding of visitor behaviour.

In this sense, the self-transformation process requires relocating the emotions in a privileged position. Research about the influence of the affective domain into making choices is one of the pillars. With respect to tourism, concepts such as 'place meaning' and 'place attachment' are relevant to understand tourism behaviour (Wynveen, 2012; Jorgensen & Stedman,

2001). As a result, tourism research is increasingly focused on tourist's motivations, behaviours and experiences (Álvarez Sousa, 2004; Higginbottom, 2004). Diving activity is no different, as it is defined by several motivations, but there is little doubt that the satisfaction of divers increases with the 'special' wildlife encounters. Indeed, the motivations for diving usually are led by the wildlife watching/encounters, although the warm temperatures are also revealed in the list of priorities (Krieger & Chadwick, 2013). However, taking into account the dramatic situation of the marine realm, divers become witnesses to the Sea's emptying. As a consequence, tourism and recreation use of marine environments is one of the most significant interfaces between citizens and the ocean. The meaningful experience becomes an upward factor, pushing the shift from sports motivation to 'something else'.

Within the above mentioned 'experience economy' context (Pine & Gilmore, 1998), 'place meaning' describes the value and significance of the setting through the cognitive concepts and/or beliefs which the individual has (Stedman, 2002). Concurrently, the 'place attachment' reflects the degree of bond to the setting (Kyle et al., 2003). For this study, the researchers have usually used interpretative designs to provide the place meaning and quantitative measures to understand the intensity of the place attachment. However, these studies continue to have the challenge of comprehending the link between both items. As Powell & Ham (2008) note after their study about interpretation in the Galapagos, there is not enough research about how well-planned ecotourism experiences can improve the 'tourist's gaze' towards Nature. According to Wynveen (2012:288), we need to *'explore how recreational visitors' attachment to a marine resource is reflected in their depictions of why the resource is meaningful'*. This significance is gathered in the notion of sense of place. Jorgensen & Stedman (2001:235) in their attempt to measure sense of place describes this notion as a combination of concepts which reflect the interaction of people with the surroundings. Through the attachments to the place (feelings), the meaning of that place (cognitive) and the normative answer provoked (social norms), the sense of place is defined. The present study follows this line of thought with further exploration of the dimensions of place attachment and place meaning to understand the diver's relationship with the diving spots; their local seas; and the Ocean in general.

Bordas (2003) claims that the main objective of this profession is to provide positive emotional moments to clients, as this is what the tourists buy. Some studies have proven that nature-based experiences promote an emotional affinity and behavioural change (Ballantyne et al., 2011b; Lee & Moscardo, 2005; Tisdell & Wilson, 2005). In this vein, the natural settings show a particular fragility - especially in the marine realm - which can define the entire product. Therefore, the narrative of activity should include educative and regulative strategies to improve the visitor's satisfaction (Cagua et.al, 2014) and behaviour. As a consequence, a new form of communication is necessary. The communication of feelings (emotional messages) is the core strategy to make visitors connect with the 'tourism product'. To achieve this, stories play a very important role as a tool to communicate these values. As Hoyt states in his *'In a Blueprint for Dolphin and Whale Watching Development'* (The Southern Cross University Whale Research Centre & Syneca Pty Ltd, 2009), good and accurate stories are a relevant technique to encourage urban dwellers to develop their understanding of oceans. '*We passed from equipment sellers to experience sellers; from package designers to builders of stories; from marketing experts to the storytellers. At present, the product is to create a story*.' (Bordas, 2003:3). The necessity to have an active experience with memorable emotions is a more desirable product in a market where the stories are the key vehicle to connect with the site. The process to connect with the environment requires attention towards *'what is seen and heard'* (sensory impressions)-; *'what is felt'* (emotional affinity); the reflective response from the provoked thought; and the actions generated as behavioural responses (Ballantyne et al., 2011). As a consequence, how and where that experience is conducted also must be considered.

The priority is still focused on feeling safe and comfortable in the water instead of understanding it. Yet, the time to change is here, the Ocean is transforming. The environmental crisis is the Elephant in the Ocean (Goldstein, 2015). The Sea cannot be silenced any longer.

The pressure exerted by tourism is one of the contemporary challenges for the industry (Branchini et al, 2015). Due to its multi-factorial condition, as these same authors highlight, its capability in shaping the socio-economic and environmental context of places is increasing. This potential to re-shape implies impacts which compromise its sustainability. Regarding marine tourism, the disturbance on seascapes and wildlife influences the tourist

satisfaction, affecting tourism business (Branchini et al., 2015). This is a solid argument to follow the path of ecotourism for the environmental, social and business good. Increasingly, tourism has generated a certain expectation as an environmental awareness-raising contributor. The adoption of sustainable principles, good practices and education are part of these potential roles of tourism which is reflected in numerous studies (e.g., Marion & Reid, 2007; Ballantyne et al., 2011). Within the wide spectrum of the activity, nature-based tourism assumes a leading position in meeting this challenge (Ballantyne & Packer, 2011).

Scuba diving, as part of the tourism industry is under scrutiny for its impacts on sustainability, taking into account the environmental, social, and economic pillars (Lucrezi et.al, 2017). At present, the Climate Crisis and plastics have led the concern, due to their particular impact on diving experience as being the direct drivers of a seascape's change. In addition, the increasing number of tourist divers is another concern. In this vulnerable context the diving activity is in transition due to this higher accessibility; competitiveness with other water activities; confusing legislation; and governance issues (Lucrezi et.al, 2017). Some steps forward have been taken as the scuba diving tourism system (SDTS) defined by Hillmer-Pegram (2014) and upgraded by Dimmock & Musa (2015), describes the key actor of the activity: the marine environment where the dive takes place; the stakeholders; the divers; the scuba diving industry, and the host community. The research represented in this document follows this scheme to explore and study Ocean Literacy in the industry. The divers are understood as those that create demand such as tourists do (Dimmock & Musa, 2015). These authors named them as tourist divers; a nomenclature also assumed by this study. Regarding the host community, this study differs from the SDTS by including the authorities and policy-makers with the stakeholders. The same reorganisation is made with the diving industry which is referred to exclusively as diving centres, certifiers and diving professional associations, moving the hospitality sector suggested by SDTS to stakeholders. In this sense, the entire peripheral suppliers described by SDTS are considered part of the stakeholders in this project. SDTS defends that this structure works through communication, collaboration and adjustments among all actors (Lucrezi et al., 2017). This strategy of collaboration is the ground of the Ocean Literacy approach. This will, however, require a more informed ocean literacy strategy to be adopted. It is recognized that dive tourism is a certification industry where environmental literacy is still a challenge (Hyde, 2015).

Weaver (2005) has outlined a spectrum of nature-based tourism interactions using a continuum of minimalist to comprehensive ecotourism characteristics. These have different levels of sustainability, due to the degree to which the ecotourism experience sponsors behavioural change. Marine tourism operators may not have the knowledge base to develop the change effectively in their clients, despite having a genuine concern for the sustainability of the resource. Taking into account this fact, the information which is provided to tourists should be better managed. The crew are one of the key actors, through education, proper management and interpretive material. The strategy of Ocean Literacy allows for building personal connections with scientific information regarding the marine ecosystem in order to generate more relevant knowledge for the general public. To reflect, articulate, and exchange, are the main pillars of this educational proposal. Therefore, if the experience is put in the centre of the tourism speech, interpretation can be the suitable tool to restore the relationship.


'*The worst harm to the Ocean is the human ignorance'*
Worldwide known marine scientist,
Dr Sylvia Earl (Santoro, 2017)

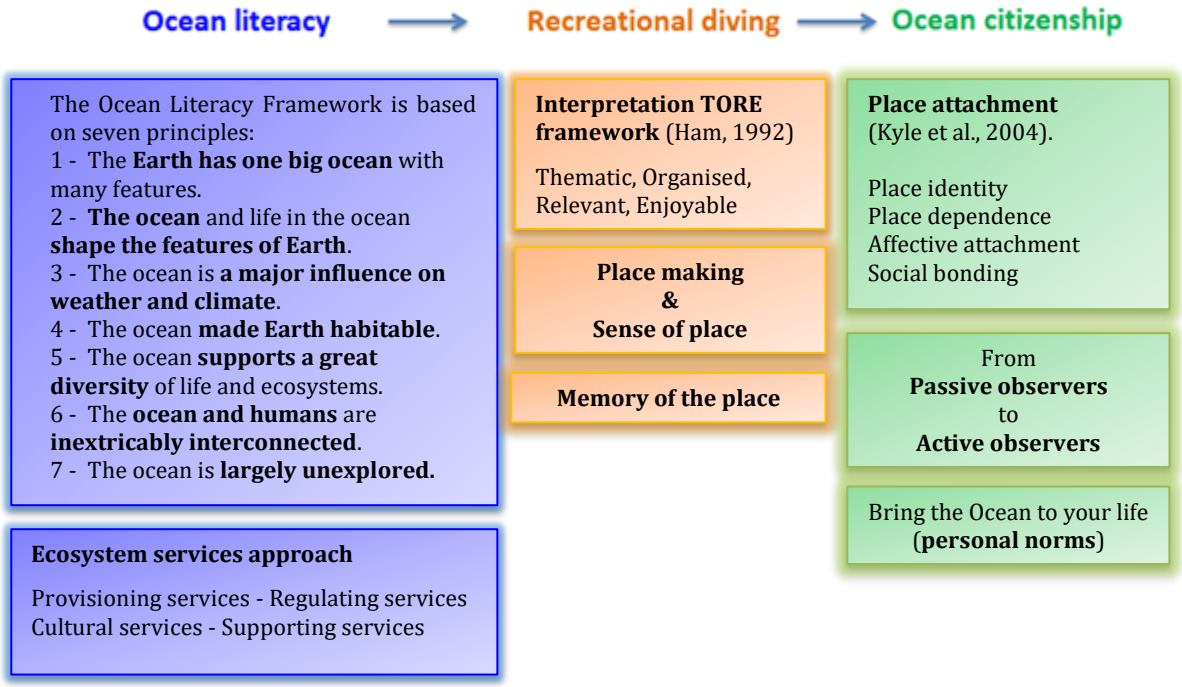
Figure n. 2: Marketing of a diving centre related to Ocean Literacy.
Fieldwork, summer Mallorca, 2017

A good knowledge base is a key ingredient to form the attitudes properly. With activities such as an interpretation program where the interaction with nature and the perceived costs and benefits to the ecosystem should be contemplated (De Groot and Steg 2010). However,

regarding diving tourism, Krieger & Chadwick (2013) gathered the studies about the use of pre-dive briefings to the marine management. The conclusions support, with some reservations, the premise that a well-informed diver avoids damages on the ecosystem by their actions. However, despite these potential benefits, the diving centres have limitations in conducting this type of briefings. The companies are still giving really short briefings with limited or absent sustainability tips. For that reason, some studies suggest that the citizen sciences program can be the excuse to include this type of information during the activity (Barker & Roberts, 2004). The citizen science programs on board can be a good platform for talks where the scientific collective can explain complex topics which describe the marine dynamics. The diving industry needs to work together with scientists because divers are aware that something is wrong down there, but they do not know the reasons. As is explained above, people want to take part in something which contributes and the citizen science can be that opportunity (McComb-Kobza, M. (2015). In addition, these types of programs in the diving industry usually contribute to developing a green image, demanded by the increasing eco-tourism market (Branchini et al., 2015).

In conclusion, this project seeks to understand how people can develop empathy about the ocean environment through meaningful experience (knowledge) during leisure activities. Much like the travellers of old, modern ecotourists have the chance to take a similar journey: discovering the Oceans through ´trips of knowledge´. Cater (2010) highlights in words of Timothy (2001) the necessity of human beings to push their own limits and keep 'alive' the spirit of the explorer. Taking into account the vast human ignorance related to the marine realm explained above, the marine experience needs knowledge, clues, and steps to 'understand and live' what the diver is watching. The ‘hypothesis’ is that the recreational scuba-diving activity has the potential to raise knowledge of the Ocean and awareness about its current environmental situation. Understanding such issues in the period where humans are the main change agent over the Earth (the Anthropocene) is highly relevant to sustainability debates. In this way, ocean citizenship can be part of the contributions of the industry towards that sustainability. The following figure n.3 explains the path to get this purpose into the blue space.

Figure n. 3: Foundations of Ocean Literacy & citizenship approach in the recreational diving




The stream of Ocean Literacy with special attention to the sixth principle - the ocean and humans are inextricably interconnected - can be the main framework to show the marine knowledge in the diving experience. As such, the ecosystem services scheme is added to this purpose due to its educational potential to outline that social interdependence with the sea. Therefore, both schemes are chosen as the base of a diving experience where the sense of the place sets the connection with the marine realm.

To achieve this aim, the interpretation technique TORE (Ham, 2013) is the communication strategy selected (more in detail in 2.6 Storytelling). Themed, organized, relevant and enjoyable communication, TORE, gathers and shows the meaning of the place for locals and visitors. In this way, the industry can include knowledge as a way to connect with the diving locations; developing the sense of place and making the diving destination. By drawing on interpretation strategies (TORE), the diver improves their mind-set related to the sea whose result is an own marine framework (memory of place). This outcome comes from a diving experience with place attachment as business objective.

The local identity related to the place helps to understand their importance; the place dependency and social bond by users contribute to their relevance; and finally, the individual and collective affective connection (e.g.: childhood memories) strengths that relevancy. All these factors are the foundations of the attachment with the local sea which can be the base of an engaged experience. As a result, promoting place attachment, the diver shifts from being a passive observer to become an active observer underwater. When coming back over water, the shift involves the transformation from spectators to actors, making decisions including the marine realm in their personal norms (ocean citizenship). They start to watch the Ocean actively, 'turning their eyes into Blue' (Cousteau, 2015).

Therefore, this project studies how to develop a connection with the blue planet, through a literal and metaphorical immersion towards ocean literacy.

Let's design the adventure of discovery.

# Chapter 2. Conceptual framework

## *Talking with experts*

This section describes the theoretical framework where the Ocean Literacy approach can become part of diving tourism. First of all, we examine the evolution of the social context towards more ecological awareness as the backdrop for more mindful diving experiences. Once the (eco) social predisposition is illustrated, the Ocean interface is shown as the socio economic and cultural space for personal growth activities. This requires consideration of motivations to visit natural settings. The different reasons to choose these destinations shed light on the current relationships between humans and Nature. Considering the literacy approach which underpins this research study, among all tourist options, ecotourism is introduced as the chosen framework, with Environmentally Responsible Behaviour (ERB) as its mantra. However, the challenge of this research study is to understand how to include marine knowledge in the diving activity. Tangible impact on social behaviour due to this new awareness would be a desirable outcome, although never guaranteed as Gössling & Buckley (2016) highlight.

To promote this aim, the process of changing behaviour towards our seas is analysed through knowledge transfer. Exploring the theory regarding persuasive communication and the interpretation strategy as tools for the new marine dialogue leads us to the '*dive of knowledge*' as the product with the combination of tangible and intangible values of the local sea. Consequently, it is the turn of the architects of the entire approach, the storytellers. The staff is understood as the drivers of the twenty-first century diving to encourage the shift from passive to active observant diver. This entire path is then to include the diving activity in the emerging development of global ocean citizenship.

## 2.1 Pro - environmental world vision

The Ocean Literacy approach in the diving activity requires that the divers show inclination towards eco-friendly mind which allows a meaningful interaction with the Ocean. Therefore,

this theoretical background must begin with a historical review of transformations that have developed the current western pro-environmental society.

Fascination with the sea is part of a deep human narrative which tells about civilisations; dreams of conquest; and what the blue horizon inspires. The relationship of humans with the Oceanic environment is fed -mainly- by two channels: the water footprint in our human genetic map (Wallace, 2014a); and the socio-historical bond with the marine realm. In respect of the latter, the '*Blue Humanities'* - a term coined by the English professor Steve Mentz - highlights the vast production of masterpieces inspired by the Ocean. In words of Rachel Carson, the human being comes back to the sea through art and literature. Before the nineteenth century, *'the discovery was more by sea than of the sea'* (Gillis, 2013). This same author explains that the approach was more utilitarian than aesthetic where the Ocean was only a space to go from one place to another place (e.g.: sailing and maritime trade). In the late eighteenth and early nineteenth centuries the return begins, with a greater interest in the sublime, the mind and imagination are the tools (e.g: *Twenty Thousand Leagues Under the Sea of Jules Verne*; or *Moby-Dick of Herman Melville*). Thus western culture developed another way to know the marine realm, an unreachable space for most people.

For its part, the science also begins a glance to go beyond this horizon. Biological studies, for their part, moves forward from shallow species to ones from the depths. Equally, disciplines such as anthropology or archaeology move away from the shore to understand the role of the marine context for humanity. When geography looks at the sea, when history starts to include this huge body of water in the human narrative, the 'ocean-space' notion is coined. This social construction of the ocean (Steinberg, 2001) becomes one of the first steps towards socio-environmental knowledge. Hence, literature and science join in an unusual marriage called eco-literature, also studied by the 'blue humanities'. This combination integrates the spatial and temporal dimensions of water. Through disciplines such as the Darwinian evolutionary science - the sea is explained as a living organism with chronology as a fourth dimension (Court, 2012).

This historical evolution has meant the knowledge of a change: the evolution of the sea. The manifestation of environmental awareness in the world-vision of Western culture had its

birth in the 1960s. Writers and activists such as Henry David Thoreau with his 'marine tint', John Muir, Aldo Leopold and Gifford Pinchot (Gillis, 2013) opened the path to a greater environmental awareness. This concern had an official starting point with the publication of *Silent Spring* by Rachel Carson in 1960 (Drengson, 2012), a treatise of chemical pollution, often considered the birth of modern Environmentalism and a strong push to the conservation field. The debate generated around this text involved the appearance of a new concept. In 1972, Naess explored a way to question our behaviour in relation to the environment (Drengson, 2012), developing the idea of eco-centrism where the human being is only part of the complex natural system without any privileged position. Naess drew an imaginary line between deep ecology (or long-range ecology) and shallow ecology (or short-range ecology). When there is comprehension of the environmental issues without a change of behaviour it is considered shallow ecology. At present, this is still the most popular version of environmental concerns within society because of its fit with the capitalist framework and its preoccupation with growth (Iglesias, 2009). However, when the understanding of complex relationships between causes and consequences gives rise to changes in mindset and behaviour- this may be regarded as a more committed version, the deep ecology (Drengson, 2012).

Some decades later, the philosopher and physicist Fritjof Capra endorsed the purest version of ecology with a series of publications that started with *The Web of Life* in 1996 (Iglesias, 2009). The deep ecology entails a commitment to respecting the intrinsic values of richness and diversity, nowadays regarded ecocentric values (Drengson, 2012). This trend where the ecosophies – individual life philosophy with biospheric values which is developed by Naess (Iglesias, 2009) - acquire an important position within the world vision which is conceptualized as the New Ecological Paradigm (NEP). This was reflected in a change of the social parameter from the Dominant Social Paradigm (DSP) described by Pirages & Ehrlich in 1974 ( Anderson, 2012) to the New Environmental Paradigm (NEP) coined by Dunlap and van Liere, four years later (Lee & Jan, 2015). For more detail about the NEP see the appendix 1. Designed as a scale to measure environmental concern, its main underlying concepts are ecocrisis, limits to growth, and human domination over nature.

It is a reflection that the environmental vision of society has evolved in parallel with the transformation of social needs. To begin, individual needs are an indicator of societal

changes, therefore, they modify according to this societal tour. In this sense, modernity developed around products as the centre of its existence. At that time, the sea began to be conceived of as the place for a variety of aquatic activities for an urbanised society. Subsequently, the post-modern society was focused on services as a way to show the importance of skills and knowledge as added values. Following this trend to the Maslow psychological scale of needs, the next step has been the society of beliefs - or also named the Dream Society - according to Jensen who coined it in 1999 (Landeira, 2011). The successor to post-modernist society defends psychological priorities as the core of a new humanity. This contemporary societal framework emphasises human´s aspiration to seek happiness, giving life meaning with the main purpose of growing up as an active member of society. Through doing something for others; being part of a group; or contributing in laudable causes, western society of the early 21st century is preoccupied with self-fulfilment. However, at the same time and with solid roots in the current society, we are now involved in a society characterized by movement, fluidity and flexibility which is prefers personal pleasure over solid social status and a collective framework, according to the philosopher Gilles Lipovetski (Rix, 2011). It is the ultimate expression of individualism in the framework of the hypermobility. Consequently, these two world-visions cohabit in the current Western culture with more than one stress as happens in the diving activity.

The inner nature of the diving activity challenges the mass backdrop of the hedonism and rush. The activity is far from instantly rewarding. The main motivation of diving - which usually is to observe wildlife - requires time, expertise and luck, particularly in exploited environments like Mallorca. The divers are witness of this situation therefore, in a context of the present eco-crisis, the commitment for environmental causes -which could have started as counter-current - nowadays it gains importance, promoting this new paradigm of laudable causes in collective frames. In this connection, the importance of the marine space is clear. Coastal areas make up approximately 4 % of the global land area (UNEP, 2006), and yet because of their wealth of resources, host significant proportions of the global population. In Spain, the coastline - 7% of the national territory - hosts 44% of the country´s population according to the last national statistics of 2010 ( Royo et al., 2012). This is the context where relies on the recent increasing interest of society, lately reflected at the highest profile level.

The World Ocean Network - launched in 2002 with the partnership of 450 institutions worldwide - was the promoter of the *'Blue Society* ' notion (Court, 2012). Under the umbrella of Rio+20 Ocean, the concept of the Blue Society defines the commitment of well-being and harmony with the marine realm. Despite its stress mainly on a sustainable use of marine resources (utilitarian approach), its educational stream opens the possibility to integrate the macro ecosystem in the societal vision and the stakeholders' practices, fostering co- responsibility towards the Ocean. As a confirmation of this new shift, McKinley & Fletcher reveal in their study about marine citizenship in the UK (2010) that society starts to understand that ocean governance should not be only a governmental concern but a cooperative (multi-player) management. This thinking is grounded in a society where the marine environment becomes part of the collective interest. Sea for Society (SFS) - funded by DG Research & Innovation under the Theme Science in Society- (Sea for Society, 2013), is an example of this approach in practice. In this project developed in Europe, marine eco-system services were the core of a dialogue among citizens, stakeholders and scientists (2012-2015). Through public engagement in research (PER) and knowledge sharing, the European region aims for smart management (Marine Institute, 2018). These steps towards more marine society have led to ´Our Ocean' Conferences (e.g.: the fourth edition in 2017, Malta), Ocean Ministerial meetings (e.g.: ´The Ocean and Human Health´, Lisbon, 2017) and dedicated budgets (e.g.: Horizon 2020). All of them with a promotion of ´Ocean Literacy & Culture, Ocean Science & Innovation and Blue Economy´ (Oceans Meeting, 2017) which are understood as an answer to the social demands related to the seas. And where the Unesco and intergovernmental Oceanographic Commission (IOC) has been the last one to join through the launch of Ocean Literacy Portal (UNESCO, 2018a).

In this ground of relevance and outreach, activities such as tourism are strengthening because of this society pro-Oceans. At present, the increased access to tourism activities based on the environment contributes favourably to this new way to coexist. However, at the same time, a more intensive incursion into the environment brings major pressure on it and its resources. This new risk highlights that without adequate knowledge, an increase of 'eco'- interest by society could counter-productive. Therefore, the question is which type of experiences in the recreational sphere develops empathy for the blue surroundings.

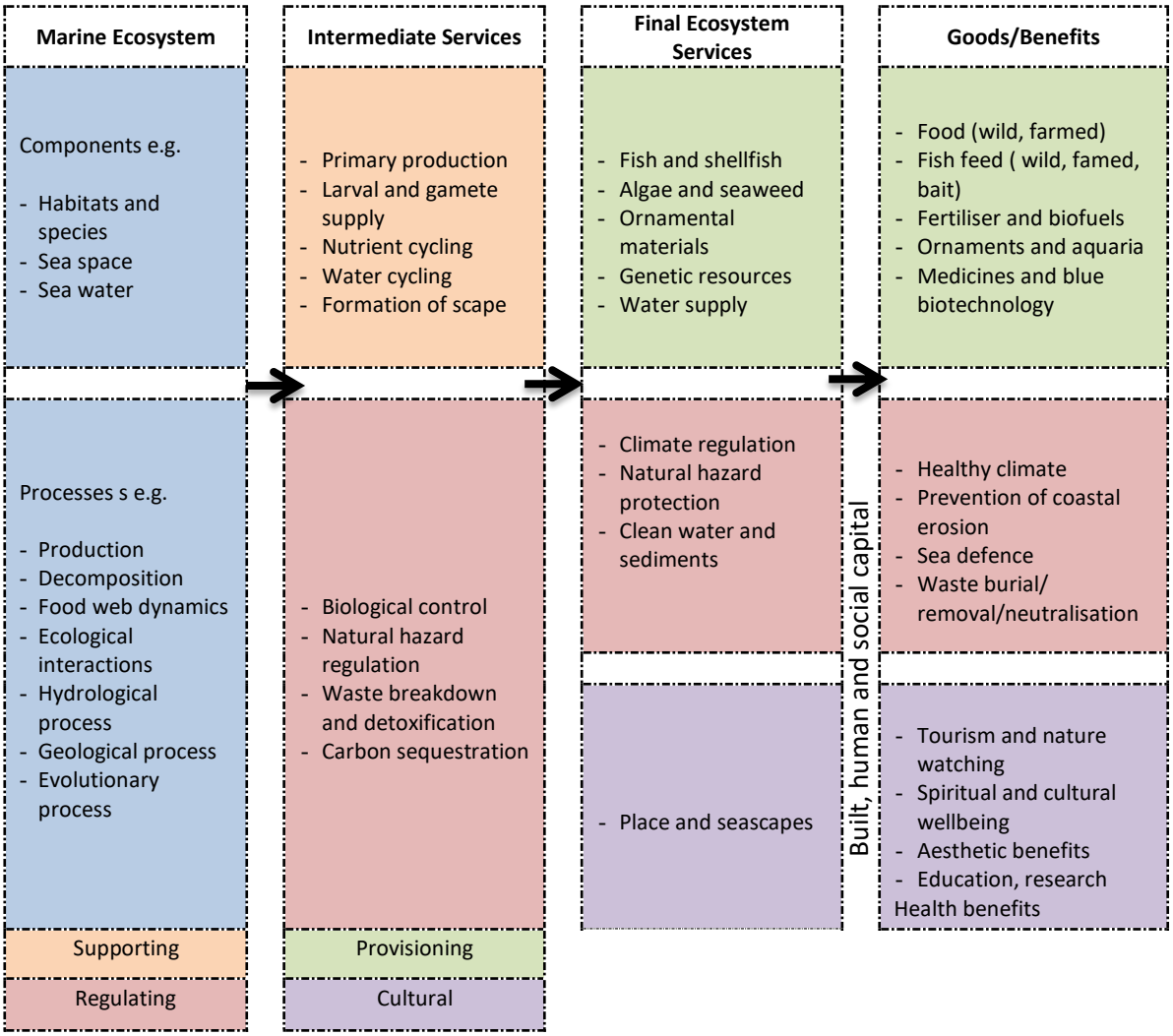
## 2.2 The cultural service of Nature

### *Tourism*

The literacy about Nature has the challenge to be aware of its wide range of values to develop the solid empathy with the environment. This section illustrates the rich value of the Ocean when seen from biospheric approach and consequently the benefits for improving the related businesses, like recreational diving. The storyline begins through the economic value defined by market - the most understood -; after that, the non-market values are highlighted as the hidden economic benefit for the businesses and society. The current society still needs an economic narrative to comprehend the value of Nature. Consequently, this utilitarian overview is also considered an effective educational strategy.

Recreational scuba diving is framed in a scheme where the beauty of seascape has to feed the diver's satisfaction and special encounters with iconic animals can leave unforgettable memories (e.g: diving with whales) (Lucrezi, 2017). Therefore, in this activity, the intangible values acquire more importance (e.g: aesthetic layer) in front of tangible ones (e.g: amenities on board). However, the social concept about Nature is basically pragmatic what it means that the human interest in Nature is still related to its anthropocentric values. Therefore; these intangible values are difficult to understand. With regard to the ocean, these values are particularly limited due to the lack of general awareness about the marine realm. In this regard, the Millennium Ecosystem Assessment (MEA) was revealed as certain help due to the fact that although the primary purpose was the economic assessment, it resulted a better educational and policy tool (Peterson & Lubchenco, 2012). It is a comprehensible way to show the multiple-values of environment.

Figure n. 4: Ecosystem service classification




Source: UK National Ecosystem Assessment, 2014a:3. Figure 4.S.2.

The MEA is an international scheme based on the concept of ecosystem services aimed at putting economic value on the main ecosystems on earth. ´*The ecosystem services are the aspects of ecosystems utilised (actively or passively) to produce human well-being*´ (Fisher et al., 2009 cited in Turner et al., 2014:20). The purpose is to show the link between ecosystem function and human welfare, including the marine environment (UNEP, 2006) (see Figure. n.4). We know that 90% of international trade is conducted by sea; as well as, the deposit of sand, gravel, coral, minerals, oil and natural gas which have been taken from the Ocean for decades (GRID - UN Environment, 2009). Yet, it is only recently when their underlying ecological functions start to be considered. The MEA classification establishes the services as of *provisioning* (e.g. seafood, oxygen); *regulating* (e.g. climate regulation, flood regulation, water purification); *supporting* (e.g. nutrient cycling and primary production) and

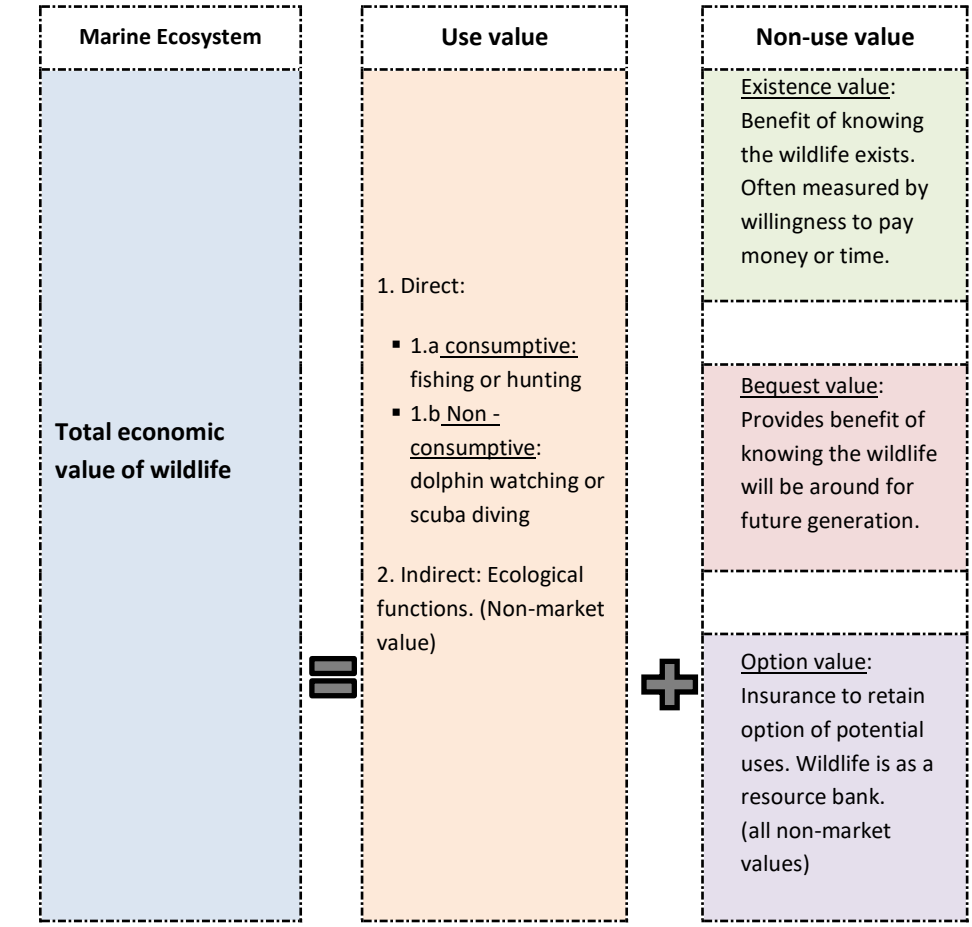
*cultural* (e.g. aesthetic, spiritual, recreational and other non-material benefits) (MEA, 2003). In this sense, education has a long - haul path as direct market value (IUCN, 2000). The associated research and educational scheme concerning the natural world represent that knowledge service (Peterson & Lubchenco, 2012). Nature as place for education has been consolidated along the decades of environmental education; university fieldworks and training colleges.

This global assessment is a good example to highlight the fact that, where nature is involved, the assessment is complex, always from a multidisciplinary approach through accounting and socio-economic understanding under the umbrella of natural science knowledge. Therefore, it can be said that it is a constructive process from different perspectives and with the challenge to explain their results. In this sense, for example, the coastal areas are sociocultural entities, with specific historical conditions and symbolic significance. Its services - including the ecosystem services - usually are defined by the collective significance (UK National Ecosystem Assessment, 2014 a). This collective conceptualization results in a monetary valuation given by users in quantitative or qualitative terms (UK National Ecosystem Assessment, 2014 a). Hence, the prerequisite to developing the ecosystem services approach of the ocean is that citizens understand the role of the ocean in their lives and the impact of their behaviour on marine ecosystems (Aqua TT, 2015).

Oceans supply two-thirds of all services provided by Earth according to the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP, 2001). In recent policy discourse the '*blue economy'* has become the current framework to manage these values.

The following figure (n.5) shows the current economic framework to put the Nature in value.

Figure n. 5: Total economic value of wildlife




Source: IUCN (2000:114)

As capitalism imposes, the market values are the ´direct´ benefits. The classification is divided into consumptive services (e.g: recreational fishing or hunting) and non-consumptive services (e.g.: wildlife watching). The ecosystem services represent both these type of uses. Therefore, following this conceptualization, tourism is a cultural ecosystem service and is considered a non-consumptive of direct use value (Catlin et al., 2013; Turner et al., 2003). Nevertheless, tourism expenditures alone cannot represent the whole economic impact of an ecosystem service one region. Branchini et al. (2015) highlight the multi-factorial condition of tourism which makes it a cross-cutting sector. This means that the tourism services involve '*an amalgam of economic, social and environmental considerations*' (Heeley cited in Hall, 2001:610). This complexity creates a situation in which the invisible essential elements and value of a system are not always recognised. As a consequence, it is relevant to review how public goods and the future of (eco) tourism are intimately related. To begin, taking into account the whole and not only some parts of a

system (direct values) is key to recognizing its ´indirect values´ (see Figure n.5). Although these are not defined as market values, the comprehension of their importance starts to become evident. Therefore to widen this vision, the assessment should go to the next level which corresponds to the non-use values. The most valuable services of the biggest ecosystem on Earth, the Ocean, remain in these potential non-market values.

These are represented by the ´existence value´ of the wildlife; its ´bequest value´, by which is meant the willingness of some people to conserve them for future generations; and its ´option values´ (Higginbottom, 2004; IUCN, 1998; Tisdell & Wilson, 2004). It bears restating that the system is not efficient in incorporating these non - use value due to the limited understanding of value as purely economic. For example, the non-use values of some species can often exceed the use values. The issue lies in that when the animals are not considered from a non-commercial approach, their value is more difficult to be assigned (Australian Government, 2008), although they contribute to healthy ecosystems for society. Sea horses in the waters of Mallorca provide one such example. Due to their vulnerability, sea horses are used as bio indicators of changes in the ecosystem (Institut de Ciencies del Mar, 2017); and at the same time, they are considered 'special encounters' during a dive.

Moreover, the principle of addition, common in standard economic theory, is not always applicable to natural resources. Take industrial fishing as an example; a consumptive use could decrease dramatically the quality of snorkelling, a non-consumptive use, in the same area (Tisdell & Wilson, 2002). These dynamics between human activities and natural settings should be considered within development plans by managers and tour operators (Higginbottom, 2004). At the same time, Higginbottom also suggests that entities such as government bodies should promote incomes from intangible values. These might include the profits generated by the conservation measures over natural resources used by ecotourism. The diving industry is a wildlife observing activity, but with a touristic resource in clear decline. According to the FAO, just only the 66.9% of fish stock is considered biologically sustainable (FAO, 2018). This situation results in unfulfilled expectations of divers which impact their experience and, ultimately, the economy. More than frequent that the natural environment is underestimated. However, it must be considered that wildlife tourism can be more profitable than the production of goods, especially in the long-term as

it can be more eco-friendly and more focused on services. Not without critics due to the complexity of its implementation, particularly in context of mass tourism which are developed later. Equally, a diving experience in a flourishing marine ecosystem is part of the community identity and collective imaginary. In this way, it is expected that the local environment gets greater support from the adjacent community or society in general, as well as policy makers taking into account this wide range of values.

In conclusion, the empathy for caring is better embraced when the relevance is explained. Relevance understood as dependency to the marine realm, in this case, the importance of the Ocean to society, beyond the economic value. Diving activity can be a partner of the global commitment to show the valuable non-use values of the Ocean. The blurry stewardship of the sea, an unfamiliar ecosystem for human beings, and complex accessibility has limited its interest to direct and indirect use. As a result, these non-uses values of Ocean are not still on the agenda, but recreational diving can help to put them on the table. The Ocean Literacy in diving activity works in this direction with the seven principles of Ocean Literacy which cover the knowledge to embrace these less interested uses (indirect and non-uses). The main core is to the spread the word about the existence of the underwater world (existence value) and human bonds with the ocean which can trigger the responsibility for the current and future generation (bequest value). Consequently, the proper understanding of blue space within society must be promoted, with the contribution of experiential activities such as diving but always with a literacy foundation.

## 2.3 Motivations

### *The psychology of travel*

Tourism is a global phenomenon which moves a vast amount of people from 'home' places to 'visit' places. Their motivations to travel are diverse (Hvenegaard, 2002), with multiple interests and expectations which determine the tourist's satisfaction (Higginbottom, 2004). Consequently, scholars have paid great attention to tourists´ motivations. The following narrative explain the potential market of diving activity shaped by the reasons to visit places such as Mallorca and choosing activities such as diving. The purpose is to show the

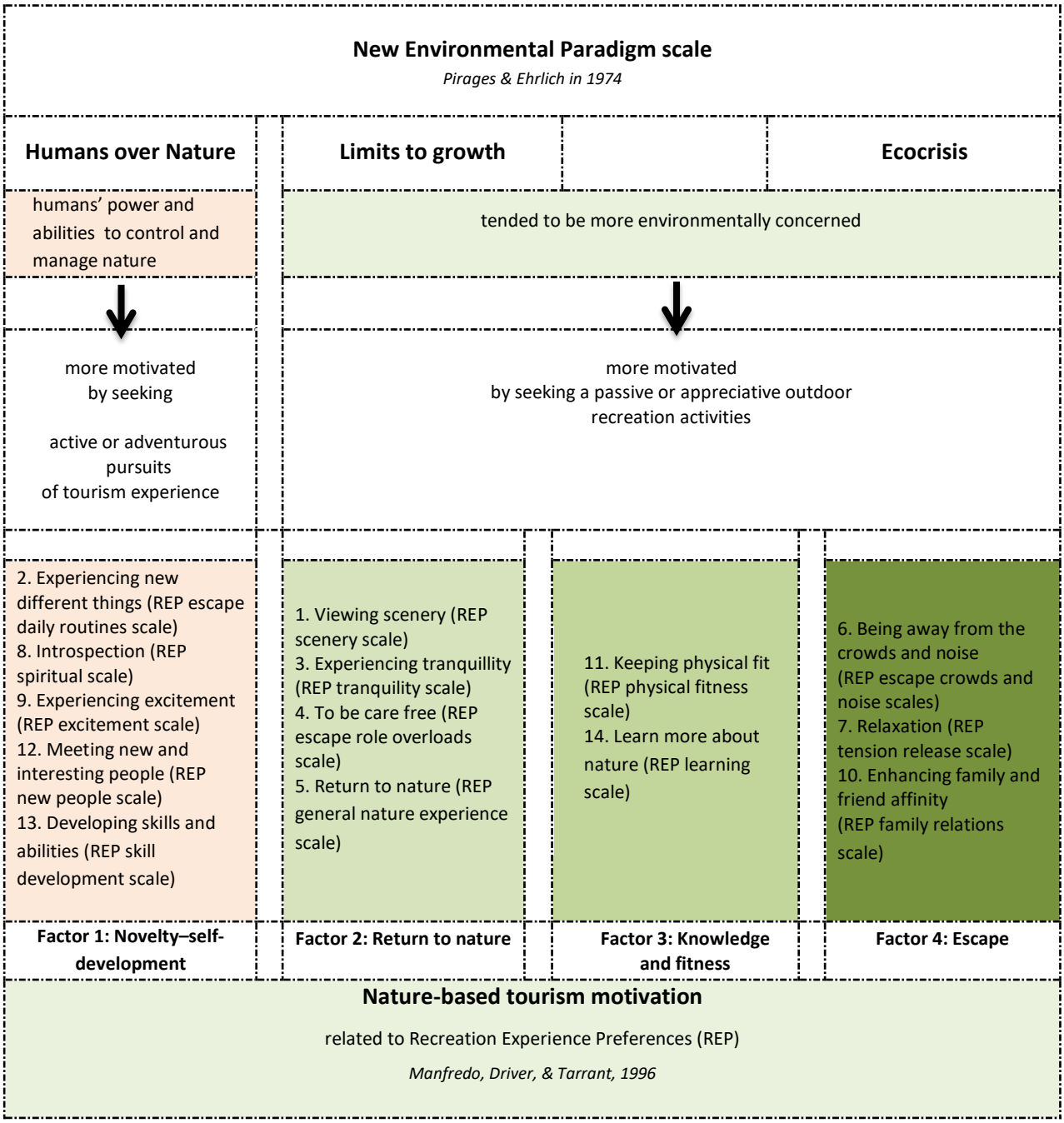
relationships between the some motivations to promote the insight-seekers within the nature-based tourism.

Dann (1977) established that the motivation to travel is a function of both push and pull factors. Push factors are internal motivators and pull factors are external factors (Uysal & Jurowski, 1994). According to Pearce, Morrison & Rutledge (1998), the internal motivators include experiencing the environment; resting and relaxing in pleasant settings; pursuing special interests and skills (for example scuba diving and fishing), or being healthy and fit (Luo & Deng, 2007). Iso-Ahola (1980) defined motivation as an internal factor that which directs and integrates an individual's behaviour. Meanwhile, the studies carried out by OMT, AIT (Alliance Internationale de Tourisme) and WTTC (World Travel & Tourism Council) support the fact that tourism is usually more influenced by exogenous factors rather than endogenous factors (offer, demand, marketing, etc.). The leisure industry is defined lately by elements such as the media; transport; new organizational systems of societies and states; and post-materialist values (Álvarez Sousa, 2004: 15). The external factors promote the attractiveness of the destination; individual's perception; and the image of the destination. These three elements are interconnected whereby the social process generates a joint image (Wynveen et al., 2012). Therefore, this connection with the place makes them less global and more site-specific. Equally, the subjectivity of individual reasons is diluted in the objectivity of collective image (Luo, & Deng, 2007).

Studies about motivations have placed more emphasis on understanding push factors than pull factors. The following three main theoretical frameworks address push factors (Kim et al., 2006). The hierarchy of needs model developed by Maslow in 1954 (Luo & Deng, 2007), creates a progression of individual's needs: from basic biological and physiological needs to the higher level of personal growth needs. The dichotomous seeking/escaping model explains the basic motivational dimensions of behaviour for leisure activities (Iso-Ahola, 1982). Although ´the seeking´ interest is dominant, the necessity of escape takes shape in an urban society whose routine starts to become a psychological loading. As an answer, travelling has been revealed as a way to free that tension (Iso-Ahola 1982). In addition the relationship with family can be strengthened because of the shared time. Lastly, the disequilibrium theory assumes that human beings try to avoid the tension between

expectation and performance to reach the equilibrium state (Mehmetoglu, 2007). All these three models are the base for the nature-based tourism motivation (NBT motivation) related to Recreation Experience Preferences (REP) which was developed by Manfredo (et al., 1996). This framework is divided into four factors with 14 options: Novelty-self-development (factor 1); Return to nature (factor 2); Knowledge and fitness (factor 3); Escape (factor 4). This model allows us to understand the connection between the environmental attitudes, measured by the new paradigm (NEP) and the motivations measured by Recreational Experience Preferences (REP) in the context of nature-based tourism (see Figure. n. 6). Several studies (Kim et al., 2006; Luo & Deng, 2007) confirm the close relationship among these factors.

Figure n. 6: NTB-REP related to NEP scale




Source: Luo & Deng, 2007

Initially, certain heterogeneity is found among attitudes across all four tourism motivations (Luo & Deng, 2007). Factor 1 comprises new experiences, people and skills; and the dualism of excitement and introspection. Manzo (2005) highlights the personal self-reflection within the natural settings, being an intimate exploration. However, the novelty seekers are more related to active and adventurous pursuits of tourism experience. This desire for excitement is connected with the NEP scale of ´Humans over Nature´. Human power and abilities to

control and manage nature defines this group (Luo & Deng, 2007). According to these authors, the perceptions about the environmental issues reflected about NEP are closely related to their tourism motivations. Factor 2 explains the motivations related to the observation of Nature and feelings in it. The human being has a special bond with nature settings (Wynveen et al., 2012). The Western culture expresses it with experiences related to solitude and preferences like aesthetic beauty of pristine environments. The decisive factors for it include authenticity, intensity, uniqueness, duration, species popularity, and species status (Cong, 2014). Factor 3 incorporates both being fit in Nature and learning about it. The combination of the notion of the '*Blue Gym'* and the Ocean Literacy approach can represent that type of option. Blue Gym is a concept derived from its equivalent Green Gym, which reflects the health benefits related to exercise in terrestrial nature settings (Depledge & Bird, 2009). Factor 4 is related to feelings which are provoked by being relaxed in Nature alone or with relatives. These factors (2-4) represent people who tend to be more environmentally concerned (Luo & Deng, 2007), assigning the ´Ecocrisis´ and ´Limits to growth´ criteria of NEP scale to them. This is understood as a more passive and reflective way to appreciate outdoor recreation activities.

At the same time, it is important to point out that the experience of nature-based tourism can generate a transformation of the personal motivations related to the environment. It means that the design of diving experience is decisive to develop empathy with the marine realm. Scholars (widely named in Dahl, 2018) argue that the individual's process starts with a stage of 'being there' when the interest is related to pure pleasure. The following stage is named 'finding yourself' to identify the phase of competence development. The meaningfulness phase is reached when the process continues to the stage of 'falling in love' through the emotional bond with the surroundings; and to the final connection which includes an active attitude reflected in 'coming to care'. The relevance for the individual is reached when there is a combination of competences and meaning. On the other hand, the resonance is a mix of pleasure and meaning. However, both of them can be the driver of the personal transformation, as meaning is the common thread and the opportunity to develop this personal connection. The next phase is to turn this bond into a commitment towards intentional goal.

As was described, the entire society lives a transformation of values and their meanings. We are involved in the self- fulfilment stage. As answer of that, a considerable portion of tourism is seeking for trips with purpose. According to the Authentic happiness Model (AhM) described in the study of Kler & Tribe (2012) about diving motivation, the eudaimonia can be cultivated through ' *opportunities for learning, personal growth, and skill development*' (Filep, 2008a cited in 2012:23). Hence, the eudaimonia can become a new business purpose. In this regard, Hammerton (2016) shows scuba-diver motivations include learning new skills which may contribute to making the dive eco-friendly. Personal development in diving activity is understood from a physical and technical perspective. As for that personal growth related to the discovery of the marine realm, the diving can embody the eco-self-exploration. As the UK National Ecosystem Assessment highlights (2014 b), the shared values within community can get over the individual intentions, introducing ethical considerations developed by society. However, these desires are in tension with a hypermodern society. In this case, most of European citizens - target of this study - are involved in conditions of high levels of mobility and fleeting experiences. This provokes - in the words of Gardner (Varley & Semple, 2015:79) - that *'speed destroys the connection with the landscape*'. As a consequence, visitors who are interested in diving adventures with emotions, feeling of risk, challenge or reward but at the same time with personal growth, start to opt for the new streams of slow adventure tourism. Highly connected with the experience, the slow tourism requires commitment with the place and the journey, living the entire experience with a true awareness (Gelter, 2000). The increasing interest in volunteer dive programs provide is an example of a greater mindfulness, for example Coray Cay conservation, Reef check and Sea search. This is shown as a counter-culture movement as was highlighted, like a resistance against the fast consumers generated in the hypermodern context (Nilsson et al., 2007). They become travellers with time to be active.

Mallorca with its micro diving can host that type of tourism. Under the sea conditions of exploitation, the tiny life is the biodiversity scenario of the Western Mediterranean Sea. As a result, this new Mediterranean requires time and better skills which mean a greater commitment with the activity. The reward is not instant and is more associated with the pleasure of discovery and the overcome of personal technical limitations.

## 2.4 Ecotourism as guideline

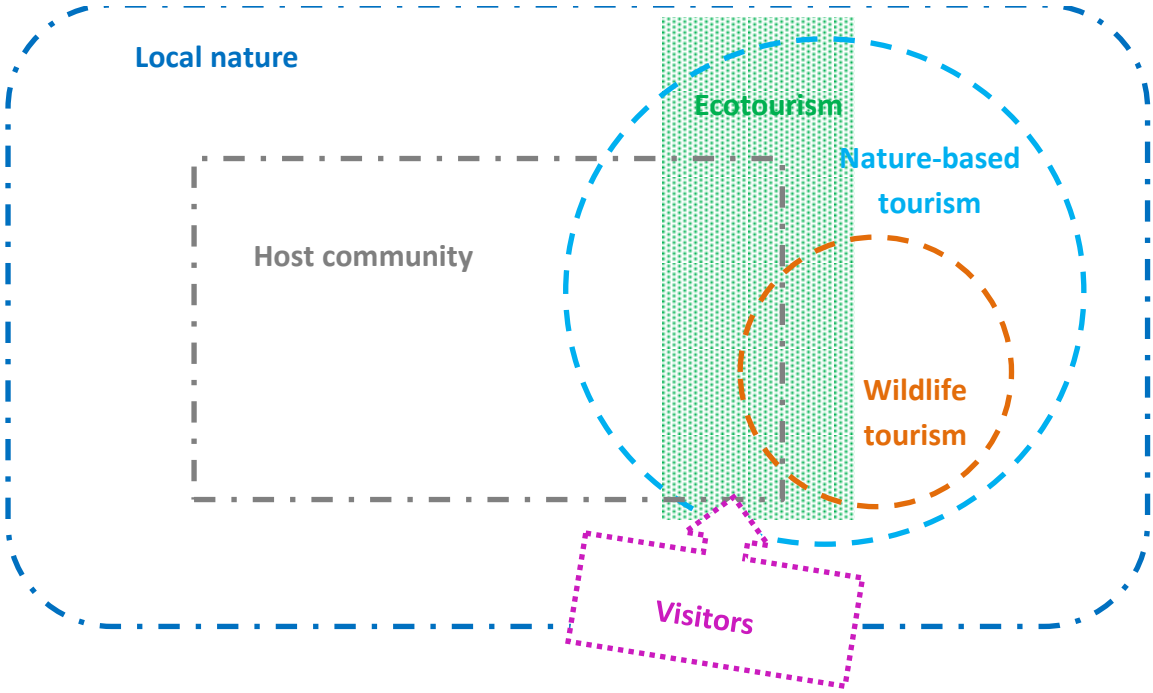
Scuba diving is an activity which is conducted inside the marine ecosystem where the wildlife encounters are the main motivation. How the experience is developed defines the path to the marine discovery. Therefore, here, the tourism framework where a diving with Ocean Literacy has a place is demonstrated.

This research study is framed within the philosophy of tourism initiatives in nature settings. The main chosen scheme is described as nature-based tourism (NBT). Wildlife tourism is the flagship of many nature-based tourism initiatives as highlighted by Higginbottom (2004) who notes the increasing interest in wildlife watching by tourism practitioners. The same author (2004) notes the tendency in tourists' motivated by nature as being focused more on species than the entire ecosystem or landscape. Encountering wild animals is its special attribute (Ballantyne et.al, 2011) and the star bonus for this type of tourism. Viewing in nature settings or in captivity; consumptive or non-consumptive, are other elements to consider according to Higginbottom.

The benefits of wildlife tourism have been widely studied, as Ballantyne et.al, (2011) summarizes. It can generate financial resources for environmental protection and sustainable management; visitor's involvement in environmental causes (financially and non-financially); and encourage environmentally responsible behaviour. The labelling of wildlife tourism initiatives depends on how the following four elements are included: wildlife and habitat, visitor/market, operator/ business and setting, and the visitor wildlife/encounter/tourism product (Higginbottom, 2004). Wildlife tourism can include specialised wildlife tours; an event of natural aggregation of wildlife; or other settings with wildlife factor as secondary aim (Higginbottom & Buckley, 2003).

Following the theoretical scheme, wildlife tourism is considered a subset of nature-based tourism which may be operated under the term of ecotourism (Higginbottom et al., 2001), as the following figure n.7 shows.

Figure n. 7: Nature-based tourism system

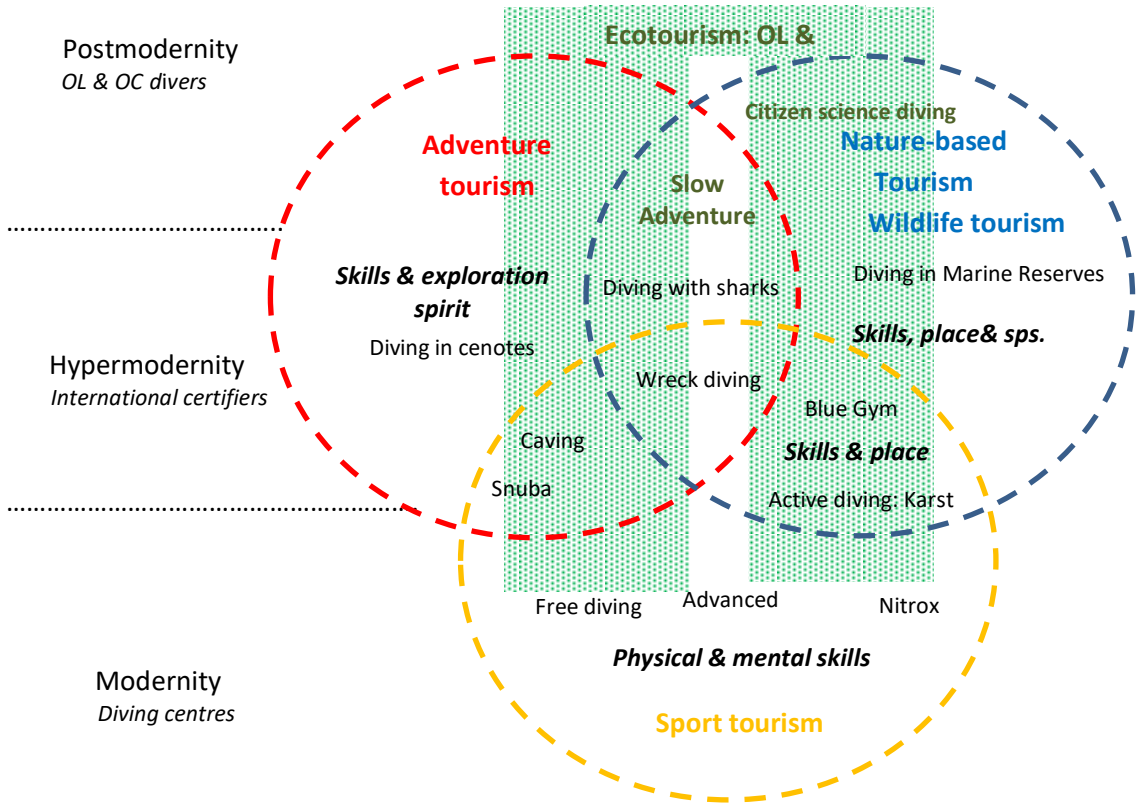



According to Weaver (2001), when wildlife tourism activity involves interpretation/education services or any conservation initiatives, it is defined as ecotourism. The International Ecotourism Society points out in its definition that the education must be for both staff and guests (TIES, 2017). They also note the decisive role of host society to carry out a suitable nature-based tourism. Consequently, the ecotourism has been revealed as the suitable approach, ecotourism aims to use local resources, including local knowledge, creating spaces of interaction with tourists; and empowering the localism in the official narrative (Robinson, & Picard, 2011). However, the definition of ecotourism is still blurry for many authors (Mehmetoglu, 2007). Even so, there is an agreed conceptualisation, resulting from a vast literature about its requirements. In terms of this research study the approach is defined by the concept developed by Héctor Ceballos-Lascuráin in 1983, which it was globally launched by IUCN (1993),

> *Ecotourism is environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features-both past and present) that promotes conservation, has low visitor negative impact and provides for beneficially active socioeconomic involvement of local populations.* (Ceballos-Lascurain, 1998:8)

Regarding the diving, the entire activity is designed to provide physical and psychological skills to dive (Fig. n. 8). However, at present the offer related to exploration is in full development.

Figure n. 8: Contemporary Diving tourism




The spirit of adventure has always been included in the activity's narrative. The curiosity for new discoveries is one of their main drivers. '*We know more about Space/moon than about the Ocean/deep sea´* (diving managers; officers of certifiers; IUCN/WWF, 1998 cited in Cater & Cater, 2006:3). These days, diving in exotic places with mystery and unknown elements is the most popular formula (e.g.: diving in cenotes). When the adventure requires particular skills, both approaches – sport and adventure tourism – result in diving experiences in caves or with new equipment such as snuba (Surface Supplied Air Diving) *'(…) an experience that often involves physical exertion, exhilaration, mental challenge and the sharpening of the senses'* (Cater, 2007 cited in Garrod, 2007:258). The third element is the environment where the activity is carried out. The marine realm is an undoubted actor in the diving experience. In this sense, the active diving in specific seascapes is increasing such as the underwater

karst system in Mallorca. The blue gym notion includes this overlap between doing sport and enjoying the outdoor activities in leisure time. The subaquatic orography is the key factor of this practice and this extends to the aquatic life. Wildlife encounters (unique, stunning or in danger) are the main expectation for most of the divers (Hammerton, 2016). Diving with sharks is a combination of iconic species and adventure spirit. Consequently, the wildlife tourism is the version of natured-base tourism where the diving in marine reserves is its leading offer.

These three tourism approaches combine in activities like wreck diving which require specific skills, discovery and particular biodiversity. The experience offers the three elements of the current diving. The story of this ship; its role in the history; and the evolution with the seabed are the recipe to diving with place attachment. The ecotourism is the approach because - as Robinson & Picard (2011) point out - this philosophy fosters the local narrative.

The ecotourism is nature-based, with an education-oriented, and managed in a sustainable manner (Weaver, 2005; Luo & Deng, 2007). Ecotourism involves multiple initiatives with a wide range of characteristics, which show the commitment to the place (tangible and intangible); their inhabitants (human and non-human; and visitor experience (motivation, expectation, and satisfaction). However, the type of interaction with the environment must be the backbone of the scheme. In this sense, Halpenny (2003:8) defines that marine ecotourism stimulates visitors to *'re-examine how they impact the earth and how they can aid local communities and the environment'*. However, ecotourism is not free of undesirable environmental consequences in its mass organization (Robinson & Picard, 2011). The overcrowding undermines the natural systems on which it depends (Krieger & Chadwick, 2013).

Human-nature interactions can be indirect in the form of passive activities such as watching or more active and direct such as touching (Garrod, 2007). How the activity is conducted always matters, photographing seahorses that are very sensitive to flashes is a good example. Diving implies a direct interaction, as the person visits or invades a new environment. In addition, this environment is fluid and facilitates closer interaction, being difficult to keep away from the action. In the words of Cater (2007 cited in Garrod

2007:257), ' *the marine wildlife tourism experience is much more embodied and visceral one'*. This means that the experience is purer, without a filter; as a consequence, the impacts of the marine realm are cruder and real. Hence, the 'observers', the divers, face tough decisions when they try to avoid impacts. The ultimate goal of ecotourism is the self-transformation of tourists in terms of their environmental values, attitudes, and behaviour (Weaver 2005). However, as Garrod (2007) highlights, tourists in marine settings are less certain about the proper behaviour. The tourists have limited knowledge about the marine realm; the marine animals show different behaviour (e.g.: proximity is more feasible) than land animals; and marine (eco)tourism is still learning how to reduce its impact. Maybe, this explains why there is not strong evidence about the positive link with changes in tourists' environmental knowledge, attitudes and behaviours (Powell & Ham, 2008). Consequently, although recreational diving can be seen as an ecotourism activity (Cater & Cater, 2007; Duarte et al., 2012), in practice its management is what defines it.

Assuming that every type of tourist makes an impact (Cater & Cater, 2007), ecotourism moves along the consumptive/non-consumptive continuum from a soft to hard path of implementation as was clearly described by Weaver (2005). It is worth to point out that this conceptual path (Fig. n 9) gives the opportunity to every type of tourism (including the mass tourism) to approach the ecotourism philosophy. Mallorca, as mass tourism destination has that opportunity.

Figure n. 9: Characteristics of Hard and Soft Ecotourism as ideal types

| **HARD** | **SOFT** |
|---|---|
| ← **The ecotourism spectrum** → | |
| Strong environmental commitment | Superficial environmental commitment |
| Specialized visits | Multi-purpose visits |
| Long trips | Short trips |
| Small groups | Larger groups |
| Physically active | Physically passive |
| Physical challenge | Physical comfort |
| Few if any services expected | Services expected |
| Deep interaction with nature | Shallow interaction with nature |
| Emphasis on personal experience | Emphasis on interpretation |
| Make own travel arrangements | Rely on travel agents & tour operators |

Source: Weaver (2005:447)

In Spain, marine ecotourism as an industry is in its infancy, as a result, this approach is not yet integrated into the design of the massive options, but with the tendency to embrace it

(Duarte et al., 2012). In other words, its soft version could be matter of time, as long as elements such as knowledge service will be taking seriously. In this sense, the diving activity presumes an eco-friendly self-image due to the fact that its relationship with nature is not extractive such as fishing. However, when an activity is reached by the masses, a wider profile starts to define it. For that reason, it is important to include a stronger cognitive domain with normative messages. Regarding this, Orams (1997) postulates that knowledge and appreciation for the Nature can produce a change of attitudes addressed to environmental protection. Thus, interventions such as a guideline with best practices and suitable knowledge seems the path followed within the marine (eco) tourism framework.

## 2.5 Environmentally Responsible Behaviour

People often behave more hedonistically on holiday (Gössling & Buckley, 2016). However, ecotourism demands avoidance of undesirable consequences, therefore, the psychological mechanism behind the behaviour must be explored (Curtis et.al, 2010).

The behaviour in Nature is based on a social construct but at the same time, has biological roots (Wallace, 2014a). Both streams shape the individual and collective ecological- self. The Norwegian philosopher Arne Naess fosters the self-fulfillment through the identification of one's own existence and of each living being. Each organism's role and its interconnections is the base of the ecological-self notion (Iglesias, 2009). In other words, this notion is the way in how the person lives the surroundings and interacts with it. Eventually, the subject and object merge to dilute borders that are socially constructed (Humanity vs. Nature).

Values, norms and motives are usually specific in relation to the environmental conduct (Van den Berg, 2017). Past behaviour which generates habits is the basis of specific behaviour. For that reason, the past is a key factor to understand the tendency to behave in a specific way. Likewise, frequency is decisive in the specific behaviour. Meanwhile, general behaviour could be a product of spill-over effect of these similar specific behaviours. As a result, general behaviours are developed as clusters (Whitmarsh & O'Neill, 2010). In this regard, the pro-ocean behaviour can be considered as cluster behaviour. These behaviour clusters are defined by context; frequency; environmental commitment (easy/difficult), or

similar individual characteristics, such as values or demographics (Whitmarsh & O'Neill, 2010:4). However, several studies have showed that influential factors like age, gender, education, or incomes are not decisive in behavioural elements such as motivation (Luo & Deng, 2007). As a result, these same authors confirm that the academic tendency is to classify the ecotourist according to socio-environmental attitudes; and motivations and interests related to NBT. However, the citizen can show a deep concern for some issues and a complete ignorance of others. An individual can show pro-animal welfare behaviours and yet simultaneously not be aware of the carbon footprint of his/er travelling choices. The promotion of the environmental citizenship makes complicated because of this dualism. Consequently, in terms of success, it is more likely if we design the approach towards specific behaviours than the general orientation (Ajzen & Fishbein, 1980). Nature-based tourism destinations with a reflective and experimental experience provide an educational backdrop to achieve this goal (Lee & Jan, 2015).

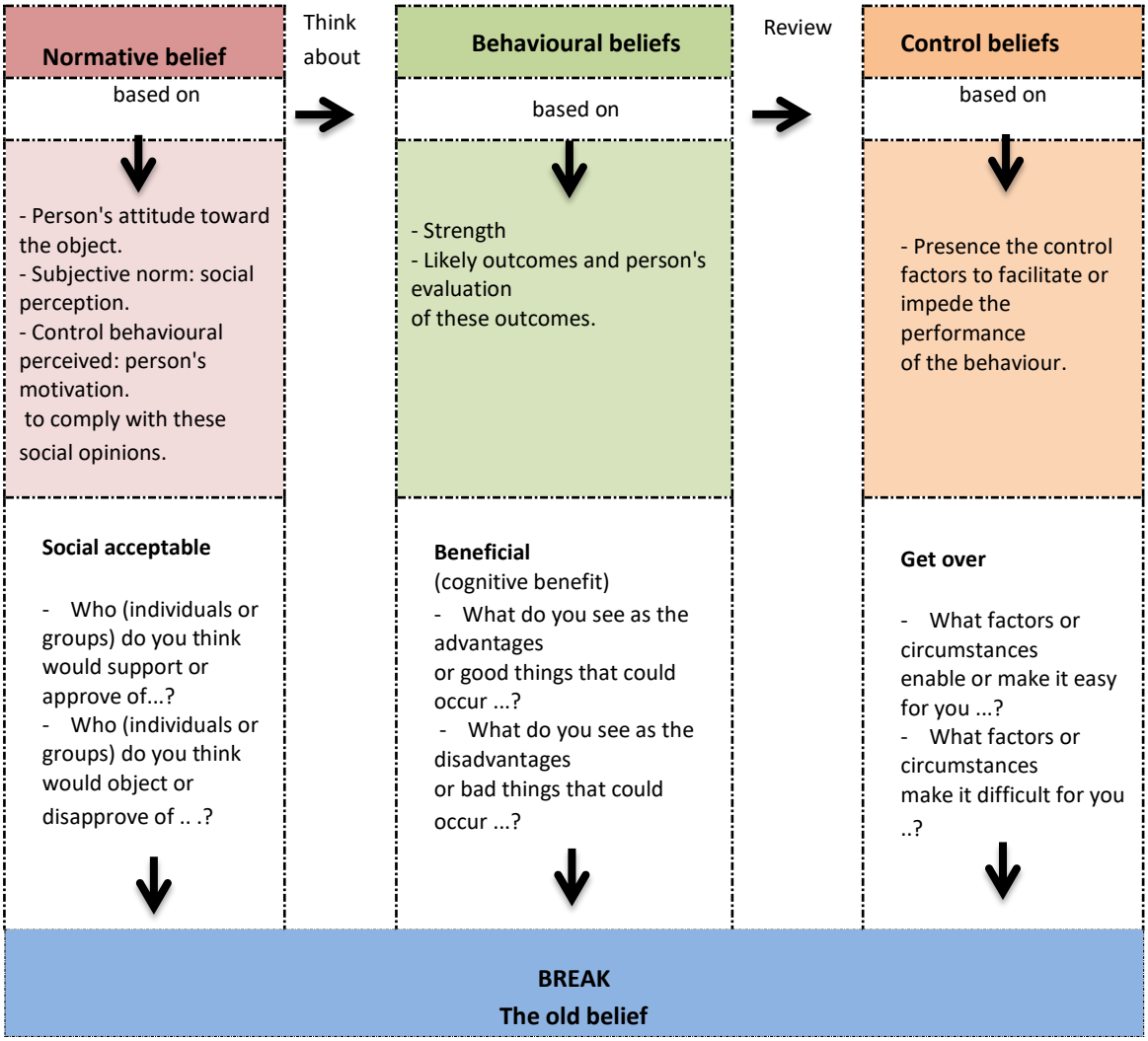
In the leisure scenario, marine wildlife ecotourism gives a suitable opportunity to behave according to 'eco-friendly' beliefs, known as Environmentally Responsible Behaviour (ERB) (Lee & Jan, 2015). The Recreational Scuba Training Council of Europe confirms the potential of diving activity to attract the ecologically oriented travellers (RSTC-Europe, 2016). They add that it is not only a sport or training but a vehicle to be part of something bigger, like the protection of the marine world (McKinley & Fletcher, 2010). This is related to the theory of that tourists can be converted into people keenly involved in conservation issues as widely supported by scholars as the father of ecotourism notion, Ceballos-Lascuráin (1998). In other words, 'making' ecotourists, as opposed those who could be 'born' as ecotourists, a theory defended by Ryle & Grasse in 1991 (Luo & Deng, 2007). The conversion can come through learning, education, and experience. This possibility of behaviour change is the contribution of these types of tourism proposals to the global defy of decreasing the human footprint on Nature. This is the main reason to explore the theories of behaviour's change represented by the Theoretical Model of Recreation Experience (Ballantyne et al., 2011); the Value-Belief-Norm, VBN, (Stern et al., 1999); the Theory of Planned Behaviour (Ajzen, 1991); and the Norm Activation Model ( Schwartz & Howard, 1981). These mind frames define the cascade which joins attitude with intention towards an action. However, the factors involved in pro-environmental conduct are still a challenge for researchers to define. Many

studies have reached the same conclusions; environmental concern does not guarantee an ERB (Powell & Ham, 2008). Despite this, theoretical studies support the idea that awareness is a prerequisite to behavioural change (Fletcher & Potts, 2007).

Environmental behaviour is founded on nature-orientated beliefs or attitudes. Taking into account that the behaviours are more difficult to define (Biljana et al., 2002; Mehmetoglu, 2007) their basis - belief and attitudes - must be the purpose of this literacy approach. The beliefs associated with a specific behaviour can trigger the attitude towards it if they are questioned by new knowledge or thoughts (Ham, 2013). These are called 'salient beliefs' or 'accessible beliefs (Powell & Ham, 2008; Fishbein & Ajzen, 1975). Therefore, pre-existing beliefs must be identified (Colquhoun, 2005), because authors like Lee & Jan (2015) still support that the adoption of biospheric values in daily routines can be a good way to develop the ERB.

The Value - Belief - Norm theory establishes that values are the ground of primary beliefs. Values can depend on individual; social-structural groups; or culture (Stern & Dietz 1994). Likewise, they are divided into three spheres. The egoistic value promotes individualism within society (Schwartz, 1970). Divers with motivations related to individual challenges or personal entertainment match with it. This suggests that if the ERB means that the personal cost- benefit is not positive, the behaviour will not be conducted. Conversely, the social-altruistic value stimulates the selfless attribute of humanity (Schwartz, 1970). Consequently, these people can feel that they have to protect the environment as part of their moral obligation. And finally, the biospheric value - also understood as ecocentric value (Groot & Steg, 2007) - is the base of eco-friendly primary beliefs. The deep ecology movement developed by Arne Naess is a faithful representative. The deep ecology entails a long-range commitment to respecting the intrinsic values of rich biodiversity, defended by the 'existence value' (non-market value). At the same time, the New Ecological Paradigm (Dunlap et al., 2000), - described above -, gathers this ecological vision. In conclusion, as the Value-Belief-Norm theory of Stern et al. (1999) states, the purpose is to turn egoistic values into altruistic and biospheric values in order to move towards a pro-environmental society (Gössling & Buckley, 2016). Therefore, the mechanism to break the old belief must be considered. The following figure n. 10 shows the path for replacing that old belief.

Figure n. 10: Change the old belief




Source: Ballantyne et al., 2011; Ajzen, 1991

According to the Theory of Planned Behaviour (Ajzen, 1991), the beliefs which consolidate attitudes are divided into three categories. The 'behavioural belief' is associated with the benefits or disadvantages of exerting a specific comportment (Curtis et al., 2010). Therefore, its implementation should be related to the likely outcomes and person's evaluation of these outcomes (attitude). The diver has to decide if the protection of local marine heritage is a desirable behaviour or not. This decision is made on the basis of personal attitude toward the action. Therefore, the previous opinion about marine protection will impact it. On the other hand, the 'normative belief' tries to figure out how this behaviour is considered in the social norms (Luo & Deng, 2007). In other words, testing if it is acceptable or not for society in which the individual belongs. This is about social perception and a person's motivation to comply with these social opinions (intention). Subjective norms

usually push individual opinion (Groot & Steg, 2007). The pressure of the community is greater. The motivation of the diver to be a good citizen (who protects their environment) is what can make the difference. Doing the right thing generates a feeling of wellbeing according the experts (Fletcher & Potts, 2007). Being socially acceptable action is a step towards the break of the old belief. But the control behavioural perceived is the truly key (Ajzen, 1992). Therefore, finally, the ’control belief’ shows the factors which facilitate or obstruct the conduct of that behaviour (attitude). What the cost for the diver is to support the local marine protection. This is the final consideration to break the old belief.

Once it is decided that this new belief and behaviour is matched with the personal normative system, the attitude will be tested. The attitude outlines the personal norms which rule the volition towards pro-social actions as the Norm Action Model defends (Schwartz & Howard, 1981). However, this same model notes that responsibility of the individual can be more lasting than the effect in the knowledge scheme. The awareness of consequences and feelings of responsibility activate the personal norms towards moral obligation. In this sense, Stern & Dietz (1994) defend that moral norms are usually more predictable for a future eco-behaviour than environmental attitudes are. As McKinley & Fletcher (2010) summarise, marine citizenship is shaped by the perceived levels of public concern, awareness and sense of responsibility. This situation opens the mind to a new attitude to the sea, generating a new volition to bring the Ocean to their life. It can be said that 'blue' glasses are worn. Being concerned about the impacts on human health due to the increasing marine pollution points out the societal responsibility with seas. Divers are witnesses of this change in the sea. In this point, the bequest value remembers that this situation worsens the options of the future generation. Consequently, the power of collectivism remains to mark the main scheme meanwhile the role of individuality assumes the role - increasingly in weight - of its adaptation. The identity is impacted by this individual vision of the commitment (with the environment or other cause). The citizenship is an 'individual construction' but under the collective world vision. Consequently, the responsibility is shown through different paths to be accepted, depending on these subjective interpretations. The information addressed to specific behaviours could be a key factor where the attitude/or identity towards marine protection awareness should be the objective. This means that the associated education can influence this balance between

individual and collective. In short, ocean citizenship has to respect this freedom of action - in terms of individuality - but feeding the collective identity of ocean lovers as the citizens.

The relationship between self-identity and pro-environmental behaviour has been explored with positive outcomes. Whitmarsh & O'Neill show the academic support for this link (2010:7) and its key role in the behaviour shaping, even over TPB variables. Their study revealed that the pro - environmental self-identity is strongest predictor of specific ERB above the past behaviour. The self-identity is led by personal motivations; social interaction (social identity); and the role played in the group - called role of identity - (Moskwa, 2012). In this connection, Curtin explains widely in her study about self-representation of wildlife tourists, how the 'cultural signifiers' can define the behaviour during these leisure activities where the group pressure or the reward/sanction of (not) following the group norms influence (2010). Equally, the cultural context impacts on the identity which means that the pro-environmental self-identity could be influenced by the context which is reflected in place identity and social identity.

The place identity has shown influence in the action as is described in Whitmarsh & O'Neill (2010) about the protection of local ecologies from threating development. Social identity can be changed with the contribution of key actors who can show the way to change the behaviour to the rest (Postmes et.al, 2005). The challenge is to identify these social references to encourage collective change. A recent and clear example has been the popular documentary Blue Planet II led by Sir David Attenborough. The social positive answer regarding plastic pollution has been outright. Hence, this self-perception debates itself between own and others' expectations. The change of behaviour could be triggered due to the cognitive dissonance between the self-identity and social identity. The inconsistency perceived is a good motor to act more coherently. With a proper persuasive communication strategy - which is explained in the next subsection - these identities can be moulded towards ERB.

In summary, self-identity can impact more strongly on actions than the behavioural attitude or intention about it (Gössling & Buckley, 2016). But at the same time, the general pro-environmental identity does not guarantee the consistent of specific behaviour. As a result, the TPB model is extended where the attitude is not the only significant predictor. Another

factor has been revealed as a condition sine qua non to make informed decisions about the suitable wildlife-related behaviours (Slagle et al., 2012; Wilson, 2008). The scholars (Ballantyne et al., 2011; Jacobs, et al., 2012; Jacobson, 2009; Manfredo, 2008) defend the human necessity of being in contact with nature and the emotional attachment to wildlife as the base for a pro-environmental behaviour. The emotion has a significant impact on intentions due to they are the base of the motivations (Jacobs & Harms, 2014). The emotional domain is the last step to reach the suitable behaviour. To invoke the emotional bond, significant experiences must be lived in order to leave positive footprints in memory. This is how the memory builds the perception of the world in order to live according to our own terms (Curtin, 2005).

Ballantyne et al. (2011) propose that the observation of nature can arouse the emotions, provoking a reflection about their behaviours and turning into more positive environmental practices. The vivid sensory impressions that can be generated from the encounter with a specific animal, the entire landscape or natural elements on them such as the feel of the breeze and the sound of the ocean. The Ocean shows conditions for that. The first impression doing snorkelling or diving can generate a 'pure' connection with the Ocean. In this regards, the tourism is a greater defender of this premise, enriching the experience. Recreation based on the experience was identified in 1971 when Toffler classified it as experimental industry in his text 'Future Shock' (Álvarez Sousa, 2004). This author argued that people in the 'future' would be willing to allocate a high percentage of their salaries to live amazing experiences. They are consumers of fantasies, feelings and fun (Holbrook, & Hirschman, 1982). The ´The Experience Economy´ (Pine & Gilmore, 1998), also named 'Exponomy', it is the base of a new perspective on the consumption of goods and services, including recreation. This recreational model is designed around two axes: the consumer´s participation and their relationship with the setting. As a result, an experience could be passive/active and more or less connected with the destination.

Discovering the nature through documentaries or other media ways cannot be compared with knowing the nature through personal direct experience. Therefore, the touch or proximity can facilitate the multi-sensorial experience to increase the satisfaction of visitors (Higginbottom, 2004) thanks to a memorable experience. Novel something, exciting or the privilege of living special something can become a long-lasting memory of the experience.

Moreover, when the non-captive animal approaches visitors, the encounter generates more sense of privilege and the emotional affinity can be built more strongly. But as the sea is under changes, that moment is less and less likely.

The nature-based tourism depends dramatically on that nature's appreciation. The aesthetic value is based on the uniqueness; the enrichment of versions; and the energy of healthy environment. The overexploitation of Nature brings its simplification. Consequently, the 'beauty' factor is impacted, resulting in direct and indirect effects on nature appreciation. This is one of multiple reasons to prove that the nature-based tourism and conservation field share the same interests.

The quality of an ecosystem is already a truly concern within some divers, showing their willing for paying extra for diving in pristine ecosystems ( Krieger & Chadwick, 2013). Their awareness about the environmental consequences of their diving performance seems the trigger for environmentally sensitive diving according to the findings described by Branchini (et al., 2015). This concern can classify as ‘catalyst behaviour’. According to (Whitmarsh & O’Neill, 2010) the true challenge is to find that behaviour which can stimuli the other associated behaviours. The authorities have shown interest because of the ability to get a specific social behaviour without hard regulations or surveillance. Recycling is a good example of this. For that reason, McKinley & Fletcher (2010) highlight the need to understand how the everyday behaviour - individual and collective - can shift to eco-friendly one. To get these 'habitual behaviours' – one of the biggest challenges of the TPB – must be the core of the interventions. They are conducted without the reasoning process (Hughes et al., 2009), and are purely instinctive as a result of repetition. Therefore, the newer the behaviour is the more mouldable it will be. Taking into account the limited relationship with the Ocean, there are not too many old behaviours related to the sea, consequently, there is an opportunity to develop 'healthy' habits based on best practices. We are on time, and the diving activity could be one of the channels, with a normative knowledge is ready. The only challenge is to learn the 'know-how' to reach the divers.

## 2.6 Storytelling

### *Communication is the key*

The way to approach the visitor to provoke interest in literacy and the improvement in ad hoc behaviour within the recreational context is the next challenge. Behaviour management - according to the TPB approach - is more effective when the misbehaviour action is due to ignorance rather than malicious intent (Hughes et al., 2009). The lack of understanding about the meaning of the place by tourists is one of the key factors which influence or define tourism behaviour. Their inappropriate behaviour sometimes is the result of the limited visitor management and/ or poor information delivery (Shackley, 2000). A less intrusive measure to encourage visitors to respect the nature-settings is a strategy of interventions based on persuasive communication. Current society needs to feel the freedom to make decisions, therefore in a visitor-experience context, resorting to more coercive and restrictive measures is less desirable (Curtis et al., 2010). In this vein, scholars urge us to explore the society's perception of the marine space in order to develop proper communication strategies (Duarte et al., 2012). In the tourism field, that strategy which assumes the challenge is the discipline of Heritage Interpretation. In this particular case, the 'heritage' to protect is the largest common good of the planet: the Ocean.

The interpretative process is often understood as *'from understanding (beliefs) to appreciation (attitude) and finally protection (behaviour)'* (Ham, 2013:91). This is a premise which puts the stress in the 'learning' step of the process without forgetting the different theories about the human behaviour mentioned above. According to the National Association for Interpretation (NAI) of USA, '*interpretation is a mission-based communication process that forges emotional and intellectual connections between the interests of the audience and meanings inherent in the resource*.' (Bacher et al., 2007: 4). In nature-based tourism, the interpretation is understood as an in-situ education to a voluntary audience, conducted by a guide and reinforced with visitor centres, displays, and brochures (Jacobs & Harms, 2014).

According to Ham (2013), the interpretation style can be divided into three types.

- Interpretation as provocation stimulates the audience to build up their own knowledge from the clues given by the interpreter (constructivist perspective of post-modernist notion of interpretation). The interpretation has to provoke thoughts which allow reaching the answer (Keirle, 2003:175).
- In the interpretation as teaching, the interpreter puts the knowledge and facts as the primary purpose of their interpretation encounter. The aim here is that the audience learn and remember facts and knowledge provided during the interpretation experience.
- Interpretation as entertainment is when the audience is formed of pure pleasure-seekers. The interpretation strategy here is designed for achieving the entertainment. The interpreters want to reach the 'wow- factor' from their audience, providing them 'cool facts' and interesting links. Larsen (2003) labels it as 'interpretainment'. This concept is related to infotainment and edutainment.

However, the excellence in interpretation is the balance among the thoughts provoked in the audience's mind; the knowledge assimilated by the audience; and the rate of enjoyment experimented during the interpretative encounter (Ham, 2013; Keirle, 2003). Consequently, the most advisable version is a hybrid of approaches.

On the other hand, theoretically, the interpretation can influence site-based knowledge and attitudes and intentions related to pro-conservation behaviours. There are two approaches to make interpretation a tool of shaping behaviours:

- the normative approach and reasoned action approach. The first strategy involves showing the 'good practices/behaviours' to visitors (called 'descriptive norms'), becoming 'socially acceptable' in order to make them 'desirable behaviours' (called 'injunctive norms'). It is considered the quick path to influence the visitor's behaviour.
- the reasoned action approach usually is followed by the provocation path. The aim is to influence the beliefs which build the behaviours, making them think about them in a positive way. The provocation gives the clues to think about positive beliefs about a specific behaviour, generating a positive attitude to it.

However, some authors (Prideaux et al., 2012; Lee & Moscardo, 2005; Wiles & Hall, 2005; Morgan et al., 2003; Beaumont, 2001; Orams, 1997;) defend that environmental attitudes and environmental behaviours do not suffer any change due to interpretation program. The main conclusion of all of these studies about human behaviour changes in the interpretation discipline is that if this interpretation product is not designed to make this change, the success will be minor. Therefore, this key purpose should be considered in the beginning stage of the designing process (Orams, 2017). Actually, poor interpretation planning and some operational shortcomings are the recurrent complaints which could explain these unsatisfactory results (Powell & Ham, 2008). Therefore, despite the outcomes expectable are not consistent, there is a consensus about the trend of increase in knowledge (Ryan et al., 2000). Indeed, recently, Ham proves through a vast gathering of studies in his book ' *Interpretation: making a different on purpose*' (2013) that Interpretation is still a powerful strategy to enhance experiences; facilitate appreciation; and influence behaviour. But to change the behaviour, awareness (surface learning) is not enough, it requires a proper literacy or understanding of issue (Fletcher & Potts, 2007).

These authors, -who highlight that deep learning where the cause-effect is comprehended -, must be promoted. In this line of thought, the U.S. National Park Service, highlights that all visitors want to live a meaningful experience as it is a human desire to make sense of life (Bacher et al., 2007). This same organisation defends that truly meaningful interpretation must answer the question '*why should I care?*' (2007:4). In words of Tilden (Ham, 2013: 88), '*meaningful things matter to us, and given the opportunity to act one way or another with respect to a meaningful thing, we'll normally choose to behave in a respectful or protective way'*. Therefore, this communication strategy has to be addressed to positive attitudes with the surroundings (Powell & Ham, 2008).

### *2.6.1 Emotional domain*

The diving activity constitutes an effective scenario to invite the general public to feel, discover and learn about Nature. Diving in a spectacular site or diving for the first time are these life moments where the 'imprint' which you can feel is usually very intensive and motivating. It is the moment where the audience is more sensitive, having the mental

channels opened for discovering the new scenario. The emotions provoke curiosity and exploration, basic pillars for motivation to learn (Ballantyne et al., 2011). As social psychologist Zajonc points out *´the affective system (limbic system) was evolved before the language and thinking´* (Wallace, 2014a: 53). The senses communicate with Nature: listening, smelling, touching. That is, living it through feelings. In consequence, the wildlife tourism experience with a higher emotional level can become a *'learning scenario'* where the deep thoughts are outcomes (Higham & Lück, 2007). Because, as Ballantyne (et al., 2011) shows, fostering the reflection also allows a positive impact on the emotive response and the ability to express feeling. This includes connecting with our own 'nature', as the tourist experience shifts towards more intensive experiences where seeing is not enough for the *´somatic society´* (e.g.: dolphin watching vs. dolphin swimming). The term coined by Turner in 1996 (Cater & Cater, 2007) invites us to put the embodiment in the core of the debate. For example, diving can give us the opportunity to be aware of the body within the experience. The embodied experience is one that allows a person to develop a connection with their *'ecological-self'*.

Figure n. 11: Exploring the surrounding, Mallorca, 2016. Photo credit: Soller divers

As Rantala (2018) notes, the connection with Nature is to understand and live its rhythms. The tempos are different but at the same time are part our human tempos; just we need time and attitude to harmonize them (Gelter, 2000). This connection through the sensorial

strategy allows the development of the 'ecological-self' notion, fostering the 'being' in the environment (Cloke & Perkins, 1998). As a result, any interpretation strategy has to consider these affective instinct answers when a new environment is faced. It means that the emotional domain is the channel to tell the story (Wallace, 2014a).

To achieve this aim, the diving activity has to be designed to create unforgettable experiences. In that regard, the feelings such as sense of wonder, awe, excitement and privilege make the wildlife experience unforgettable. Yet, it must not be forgotten that emotion is not disconnected from the intellectual link, *'because strong emotions lead to meaning making'* (Kohls, 2014).

### 2.6.2 Cognitive domain

The diving experience gives that opportunity to understand the interconnection with Nature in order to critique our human role in that network. The report about the Millennium Ecosystem Assessment (MEA) in Spain shows the worrying situation of the marine ecosystems with 71% under protection but with a limited knowledge about them (Duarte et al., 2012). More scientific knowledge production and outreach are priorities to fix this ambiguous situation. It is important to raise environmental awareness and education among tourists (Branchini et al., 2015). However, Ansel F. Hall, the ex-Chief Naturalist of the National Park Service of USA stated at the beginning of last century that, in leisure time, it is more important to be aware of Nature than to know it (Bacher et al., 2007). This premise has been the guideline of nature - related visitor interpretation programs. However at present, regarding the Ocean, action is needed. It is time to be active; the time of just being ´aware ´ passed on. Consequently, being an active observer must be the key of the tourism experience. To that end, the Ocean Literacy & citizenship approach requires that the entire diving system provides the interconnected knowledge through a critic review of the marine issues.

The principles of Ocean Literacy show the marine realm knowledge with multiple cross-references and with the main idea that everything is bonded. Therefore, the way to tackle this knowledge is to foster networked thinking, not an easy task. Although the globalization and the social IT's contribute to putting the big picture in society's mind, concerning the

scientific knowledge, the population still think in simple and disjointed terms. Their tendency is to see the issues as a central problem with a linear relationship between cause-effect, blind to the emergent properties of complex systems (Lynn et al., 2010). The components of the system and the role of each piece in it must be equally explored. To get it, these same authors (2010) suggest that the guides, in this case the staff, have to be trained,

- To connect the dots related to the marine realm and its socio-historical bond with locals and outsiders. A reflective and collective experience where the thoughts can be exchanged is a suitable ground for developing that 'dot-connection' mind.
- The next level is to be part of the effort which fosters a critical mind within society. In order to be an active observer, critical thinking should be pushed during the experience. According to the experts of the Foundation of the Critical Thinking (Paul & Elder, 2003), it is personal and a process in constant evolution so that it will be hardly reached in a touristic activity. However, some requirements can be cultivated through the interpretation program.

The speech can be designed taking into account consistency, relevance, sound evidence, and good reasons. The diving activity shows how the marine realm changes against us and the difficulty to reverse it. Therefore the critical thinking demands us to interpret the situation, testing their preconceived notions; and rebuilding one's patterns of beliefs; in order to reach joint alternative solutions/conclusions which can impact on the quality of everyday life.

The role of the receptor is not passive inside the communication process. Research has proved the contrary, showing the active role of the receptor during the integration of the new information process, interpreting it indefinitely (Azjen, 1992). The receptor has to be motivated to make the cognitive effort and to active the ability to process the new information. The motivation of the receptor to process the message is critical, therefore, the relevance of information and its reward of understanding (Azjen, 1992) are the cornerstone for activate involvement. However, on the other hand, the studies gathered in Ham's book (2013:66) revealed that the audience usually think less than the interpreter thinks or expects. As a result, it is more important how personal the message is for them than how

provocative it is. The non-captive audience decide in early stage if it is worthwhile to make the effort to pay attention or not. According to Steg & Vlek (2009), this depends on the balance between the reward (potential benefit) / effort (amount of work required), moral and normative concerns, affect, context, and habits.

### 2.6.3 Normative domain

Authors such as Whitmarsh et al. (2011), Hall (2013) and Gössling & Buckley (2016) state three elements to efficient communication:

- the cognitive ability of the receptor to understand the message;
- recognition of its significance;
- and the best practices related to that.

Marine literacy plays a central role to include the Ocean in the recreational scuba diving, developing the attachment to the place (local sea) through the meaning. For this, the personal connection with the Ocean is decisive (Wallace, 2014a). Regarding this, the cultural factors sketch the values, attitudes and behaviours related to the environment as Lee & Jan (2015) reiterate in their study about the psychology of recreational behaviour in Taiwan. In connection with it, it is suggested by Luo & Deng (2007) that the socio-historical bond with the place/ecosystem has to be included in order to understand the meaning of the 'attitude object', the local sea.

The new dialogue with the Ocean implies us to consider the host community knowledge. Through social constructions, the visitor can move close to the knowledge which has been built from social interaction with the surroundings (Mora, 2002). This interaction with the context is one of eco-tourism premises which facilitates the dialogue between locals and visitors with the hope to enrich the place knowledge and encourages to act. In this sense, the assessment (MEA) suggests (Duarte et. al, 2012:150) that the messages should show the quality of the relationships with local ecosystems through their health condition, services and impact on human well-being. Likely, the better connection with the environmental impacts than with ecological data is due to the fact that human beings are responsible for many conservation issues.

As the Norm Action Model defends (Schwartz & Howard, 1981), the awareness of consequences and feelings of responsibility activate our moral obligation to fix it. This process comes true when the visitors experiment the survival of species or the tourism speech poses threats by human actions. Consequently, citizen actions to improve and care for the nature settings should be part of that communication, as Gössling & Buckley (2016) highlight in relationship with the persuasion to carbon label in tourism. In other words, the environmental issues are understandable due to the relevance and the personal way those are introduced to tourism. How to introduce them has become the key of the entire strategy.

### 2.6.4 The trip of knowledge

*'A more experiential brand of activism encourages individuals*
*to encounter the oceans directly,*
*in order to build personal and emotional connections,*
*to get their feet wet'*
(GQ Magazine in Wallace, 2014a)

The speech, the words in it and the delivery method are part of that tool to create social environment. Recently, the idea is that the narrative is not only referential and interpretative but is also a generator (Santander, 2011). Consequently, the words chosen and way to tell them are worth special attention. Through stories, the visitor is entertained and educated at the same time. In this sense, Ham (2013) explains that the human brain uses stories to put order in the perceived world. The father of the interpretation discipline - Tilden (2006) - explains that the creators of old myths cultivated images in the mind since they understood that the soul of the landscape is a story and the soul of the story is a personality. Ergo, it can be said that, the interpretation is a communicational technique which develops the sense of place and place meaning for visitors; and the sense of belonging for locals (Morales, 2001). What this means that the design of communication must include simple messages which touch the divers' emotions (Nichols, 2015).

The strategy is to stir the feelings of divers for the Ocean instead of making them feel responsible for its destruction. The latter represents the risk of engendering a '*blame culture'* pointed out by McKinley & Fletcher (2010) in their evaluation about marine

citizenship in UK. Because of this type of consequences, the IUCN has developed the campaign called 'Love. Not Loss' (IUCN, 2018) in order to show the power of empathy as tool of change. It is a clear example to share the know-how through communication based on emotional domain. The goal is to recover the primary inspiration to fall in love with Nature. Personal connection is the last and key ingredient for getting literate divers about ocean issues. Childhood experience is usually the time to develop this relationship (Curtin, 2010): the ability to thrill and act for it. Therefore, the stories must astonish us as if we were kids; and inspire action as if we were adults. Love encourages more to act than loss.

#### 2.6.4.1 Persuasive communication

The next step is the reasoning process of the receptor as an answer to this communication (of positive feelings). Persuasive communication happens when the receptor thinks of the message and accepts it. Taking the decisive role of the Ocean in our lives as a message and a pro-active interest in it as desirable behaviour, tourism activity can create the conditions to trigger that cognitive process. Orams (1995) defends that interpretation is a powerful tool to create dissonances with the ethics of the audience, change these values/beliefs towards pro-environmental action. This process can be carried out through three main theories according to the studies of Ballantyne & Hughes (2004) illustrated in the Interpretation Handbook of Colquhoun (2005).

- The Theory of Planned Behaviour appeals the changes through beliefs questioning with new information; moral motivation to change; and the delivery of a better practice.
- The Protection Motivation Theory which exposes the consequences of wrong behaviour in order to stimulate the change.
- The Constructivist Theory attacks the misunderstanding and misconceptions related to undesirable behaviour and explain the reasons to shift.

These experts clarify the effectiveness of the last theory but suggest that the best strategy is to use all of them, depending on topic, previous beliefs, interest for the audience and the channel of the delivery (2005: 41).

Persuasive communication acts through two paths. The peripheral and central routes are gathered on the Elaboration Likelihood Model (ELM), developed by Petty & Cacioppo's (1986).

- The central route involves the effortful thought (pondering, contemplating, deliberating, wondering, etc). According to the studies of Fishbein & Ajzen, (1975), the central route has more probabilities to guarantee a change in the future behaviour because it is based on the strong attitudes. The change in structure occurs through the yielding or impact effect. The first happens with the acceptance of the argument and later assimilation/accommodation, generating the change of the salient beliefs. Another is related to the impact effects which exert a change thanks to elements beyond the own message itself such as social acceptance. This impact can lead to the opposite change of the advocated argument due to some interference.
- In parallel, persuasion walks the peripheral route which involves minimal thinking. The success of the peripheral route shows a short life (Petty & Cacioppo, 1986), that has little influence on actual behaviour and it is vulnerable to other influential sources such as counterpropaganda (Ajzen, 1992:9).

To avoid these undesirable influences, it is important to consider the process to integrate new knowledge. According to Piaget,

- the 'assimilation' of a new insight happens over the receptors' previous knowledge. In this vein, if the message is familiar for the receptors, beliefs could be reinforced.
- Meanwhile, the 'accommodation' is a process with knowledge unconnected to the individual cognitive system.

On the other hand, although a message can be strong with more arguments than counterarguments, if this is not relevant for the audience, it will not make a desirable impact on the advocated attitude or behaviour. Again, the idea that communication must be meaningful and personal is supported (McKinley & Fletcher, 2010). Tilden noted that '*any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor (audience) will be sterile*' (1977:11). Thus meaningfulness is one of the main challenges for the interpretation strategy, and often the heritage can create a personal connection by itself. The aesthetic such as beauty or strength can generate feelings which stimulate the emotional domain. But

when the visitor wants to know more about it - e.g: *'how did this come to be?*' - a facilitator of meanings is required. In this sense, the interpretation has to consider what was said above, that the meanings are 'assimilated' by the receptor according to their own cognitive process. Therefore, the meanings generated can be multiple. The design of the interpretation program must cover this wide range of meanings (Bacher et al., 2007). In this connection, the meanings developed are classified within the unrestricted zone, wide zone and narrow zone, according to the relevancy with the interpretation purpose (Ham, 2013). In addition, the attribute of enjoyment mustn't be forgotten. It is not the point to make them laugh or smile, it is the point to make them feel that they are spending a good time (Powell & Ham, 2008). When the mind feels gratification it does not lose the thread of interpretation (Ham, 2013).

#### 2.6.4.2 TORE framework

To achieve this aim, in 1992, Sam Ham developed the TORE Interpretation framework (developed in the book called '*Environmental Interpretation'*): Thematic; Organized; Relevant; Enjoyable. From a tourists' perspective the order should be: EROT. Afterwards other academics and interpreters have discussed and developed extended versions ( Ham, 2013:14), being more active, participative and creative and taking into account the differences among audiences (Bacher et al., 2007). The right path is organized information which follows the knowledge easily due to relevance and personal connection (McKinley & Fletcher, 2010).

The well-organized message contributes to success (Keirle, 2003). '*Humans have definite limits in their ability to keep unorganized information straight in their minds. With non-captive audiences, this can happen in a manner of se*conds' (Ham, 2013:26). How to link the piece of information is crucial to organize the facts. Interpretation provides the big picture of a site or resource, the moral to the story, the main idea to be cohesively developed.

The TORE approach is distinguished from the infotainment or edutainment ERO through the message. Interpretation is thematic and organized. The theme is the message whereas the topic is the subject matter to tell the message. High-quality interpretation programs are those which help the audience to find the main conclusion and facilitate to hover thoughts around that theme (Powell & Ham, 2008). To achieve this aim, the theme has to include

universal concepts as love, fear or mystery (Larsen, 2003); well-placed metaphor, simile, or analogy to connect the information with the 'ego' of the audience (Wallace, 2014a); personal and conversational language; and short themes (Ham, 2013; Bacher et al., 2007).

### 2.6.4.3 The design of the experience

The Ocean has been revealed as a perfect backdrop to begin this meaningful storyline. The Ocean has been the source of inspiration for civilizations for centuries (Gillis, 2013). For some, it meant an unknown something full of mysteries and dangerous, forbidden to humans. For others, it symbolized a world full of life, hidden from human eyes. But for all, it implied a spiritual connection with the soul of Earth. Words to a world which has always attracted to poets and travellers. The fourth dimensions of the seas, grounded in stories about the Ocean which breaks the creativity and has the capacity to touch emotions. The idea of 'time travels' show the long connection which the humanity has with the Oceans. In this context, divers belong to these travellers of their waters who dare to explore them inside. A journey of transformations where - as the cartoonist-environmental educator, Jim Toomey (2005) remembers - divers are on the frontline of this story. Hence, the 'discovery trips of the blue geography' of the planet must be part of this approach; together with the somatic experience which third dimension (physical experience) of the marine realm ensures.

In summary, the spirit of discovery feeds the diving activity (principle 7 of Ocean Literacy). To begin this trip, the first-hand experience is the way, the innovation and creativity is the hook; the local sea is the place; and the learning and active commitment is the personal gain.

To achieve this aim, the design of experience is critical. In this regard, the experience is classified into: educational, escapist, aesthetic, and entertainment - the '4Es' termed by Pine & Gilmore (1998). As an effort to extend this model, Bordas (2003: 6) specifies these levels of engagement, resulting in the following types:

- Active and psychologically attractive ´edutainment´ experience;
- Active and physically attractive escapist experience like adventure tourism;

- Passive and psychological attractive entertainment experience like attendance at a show;
- And passive and physical attractive aesthetic experience like contemplating a sunset.

Equally, the Economy of Experience suggests that the experience is unique (Pine & Gilmore, 1998). Society wants to be part of new experiences; consequently, innovation has to be in front.

According to anthropologists Cameron & Gatewood (2003 cited in Ham, 2013)

> *'site designers need to keep in mind that the public's short-term recall of information is poor and long-term recall may simply be a memory of feelings or sensations such as smell, heat, cold, or hunger. The best sites should aim to induce insight, stir curiosity, or fire the imagination' (2013:82).*

The place tries to take the audience through time to make them feel the soul of the place. Therefore, imagination becomes a key and powerful tool. Imagination has to be used to provoke empathy with the wildlife and be able to connect with their situation. The result must be a new tourism experience which provides a transformative outcome. In this line of argument, Jensen described that transformation of society towards values such as imagination where '*the emotions, stories and narratives, values return to the stage'* (1999:4). In this regard, the diving activity has the ground for that creation. One way could be to share their stories, magic moments under the water, their adventures; becoming translators of this magic (Mc Comb-Kobza, 2015). This can help divers to interpret reality based on their experience, observation, mind-set, sensibility, and willing. It is the way to make the experience unique and personal.

> '*For some, a jellyfish is a repellent bug, for others an angel, for others an extra-terrestrial, or a singular invertebrate, or a danger to flee from, a signal in the marine firmament, a dancer, an image which is difficult to viewfinder framing, the ghost of some castaway, a neon parachutist ...*' (Salaberria Urbe, 2001).

Therefore, the wildlife experience can be the medium to heighten the interest and understanding of the environment in general. The tourists involved in the Ballantyne's study (et al., 2011) about visitors' memories of wildlife tourism declared that the implications of what they had seen or heard were the way to trigger the cognitive process. For others, the information and interpretation allowed that discussion. Regarding this, some years before that author reported that wildlife tourists are predisposed to receive the

environmental message with practical information (Ballantyne et al., 2009). Simple instructions to protect the wildlife are the best formula for tourists. However, at the same time, the study of Ballantyne (et al., 2011) mentioned above, highlights that the set of actions, which they could adopt, are still not clear. For that reason, in wildlife tourism it is important to move the visitors from the experience to environmental action. As a result, the necessity to act acquires more relevance among priorities of visitors, assuming their own responsibility through active commitment: the trip of meaningful experience.

To sum up, the communication strategy must be designed with specific targets in a broader psychological context. Therefore it has to be assertive with a clear stance within an informed context; posing a set of arguments which defend that stance and factual evidences for supporting it (Hughes et al., 2009). Through procedural and effectiveness knowledge, the cognitive, experiential and normative dimensions must be included. The Kolb's experiential learning cycle (1984) suggests that the sequence of experiencing, reflecting, thinking and acting is the suitable sequence of the learning process. In this manner, the Concrete Experience provided by the active tourism such as diving is the base for the Reflective Observation. The reflective process is deemed the "missing link" between seeing and acting (Ballantyne et al., 2011). Due to sensory or emotive experiences, or social interaction, the thoughts provoked to tourists are deeper. This step stimulates the personal meaning of the experience in order to facilitate the Abstract Conceptualisation, where new concepts are formed. Once this mental process is carried out, the next experimentation could be more active. This is the ground to involve visitors in citizen science activities. This means that the social facilitation has been revealed as a suitable strategy to promote the reflection about the information (Anderson & Shimizu, 2007). Sharing the spare time with the guides and other visitors, ideas can flow, and the knowledge can be built in a joint way, giving the opportunity for learning and personal growth (within the eudaimonia as motivation) (Kler & Tribe, 2012). As a result, the flourishing of the diver is a desirable consequence of this type of diving experience where the active dialogue with the marine realm is the heart.

All this effort has to be within the framework of an Interpretive Development Program. It is a plan that unifies the designs of the interventions that must be driven by the management objectives established (Morales & Guerra, 1996). The program must answer the following questions (Morales, 1998):

- Why? to define the objectives;
- What? to analyse the resource;
- To whom? to identify the recipients;
- How, when and where? to select the media and services;
- and How will it be evaluated? to design the evaluation of these services.

Once the Program of the Interpretation has been established, the question that comes to mind is: who does this work? Who interprets the Ocean? In this sense, this approach supports that although physical media such as brochures, signs or audio-visual presentations provide some knowledge, they do not reach the level of empathy to connect with the audience, it is only people who achieve it.

## 2.7 The best storytellers: the trained guides

The Recreational Scuba Training Council of Europe - in its report about fun and safety diving - suggest that the professional profile of the 'Scuba Diving Instructor' must be reviewed. It is the core of the activity; consequently, their competences have to be measured up to the current challenges of this industry. S/he is a ' *a responsible person, an advisor, a consultant, social worker, local speaker, being strongly involved in further development of the trainee diver*' (RSTC-Europe, 2016:29). The role of dive master/instructor must acquire more relevance within the framework. Their main task should make divers more comfortable in the environment. Thus, they have to spend more time with the clients (in classroom and underwater) to create a diver who develops a bond with the marine realm. A diving philosophy which promotes the bubbles and pictures as only souvenirs; and encourage them to stand up for the Ocean as ocean rangers. Moving beyond being just a sport or only a diving school anymore is a way to live the Ocean.

At present, the new tourism scenario demands business to shift from 'tour operators' to 'the creators of experiences' (Borda: 2003), turning guides into the storytellers. '*Interpreters can bring the past alive to make the present more enjoyable and the future more meaningful* '(Bacher et al., 2007: 4). The analysis of the persuasive communication through interpretation has shown that the interpreter/ guide has to facilitate the emotional and

intellectual connection with the surroundings in order to make the knowledge delivered more successful. Fostering a reflective response related to the experience; and the showing of environmental responsible actions are the means of this strategy (Ballantyne et.al, 2011). In this way, the participants are invited to be the main characters of change's goals which the interpretation interventions aspire.

The guide is the architect of this strategy. It means that their role has to be more pro-active in the designing process. However, some types of interpreter must be avoided due to the fact that they can cause confusion and even be an impediment. According to Ham (2013:65), those who blame the audience about their behaviour (reproachers); impose their spirituality (preachers); or those who consider that all of facts are important (encyclopaedists). Yet, the difference between information and interpretation is that the latter has to have a purpose. '*A running narrative with facts is not a technique. It is information, not interpretation'* (Bacher et al, 2007:23).

The archetype of an interpreter who wants to '*make a difference'* inside of the visitors' mind, is a mind provoker. Raising the awareness; creating understanding; or advancing appreciation, this interpreter stimulates the audience to see beyond. The teacher and entertainer style can contribute but the provocation of thoughts must be in the core of the communication strategy in order to motivate critical minds (Bacher et al., 2007). The challenge is to show these meaning and discover their connections. Because, it is in each mind where the meanings are created and the interpreter is only the person who starts up this internal mechanism through his or her interpretation as was explained above.

According to the father of Interpretation in Europe, Don Aldridge, interpretation is something to happen between the two ears (inside of the visitor's minds) (Morales, 2006). Consequently, knowledge about the divers is equally important to knowledge of the resource (tangible and intangible). These requirements are gathered in the interpretation equation, developed of National Park Service (NPS) of USA in 1994 (Morales et al., 2009),

$$(KR + KA) \times AT = IO$$

(Knowledge of the Resource + Knowledge of the Audience) x Appropriate Techniques = Interpretive Opportunities.

To guarantee a minimal success, the following abilities must be forged: arguing to create solid messages; analysing different audiences' responses; and being able to identify values of resources above mentioned (Morales et.al, 2009).

These authors also defend that the interpreter has to think that their interpretation has the final purpose to promote positive changes (eg: active involvement in nature protection). Therefore, they have to keep updated with controversial issues which affect the resources and their management plans; and developing empathy with the different points of views (cultural, ideological, or educational). This assumes that the interpreters are **'meaning makers'** (Ham, 2013:49).

At the same time, a skilled interpreter has to connect visitors with the place. In this connection, the four dimensions of the place attachment (Kyle et al., 2004) can be approached in following way.

The place identity is the task of the Ocean Literacy when the human links with the Ocean are unravelled (ecosystem services). Likewise, the knowledge of local spots gives a personal touch to the location. The Ocean Literacy stream fosters this process of personalization. Equally, for divers from other seas, this storyline could awaken the interest in discovering their own marine stories. On the other hand, the place dependence must be under control of the staff. A varied and stimulated offer; promotions to strengthen accessibility; active facilities and personalized services can motivate divers to come to dive again and again. The sense of place is the ground of a guiding where the Ocean Literacy & Ocean Citizenship is developed. They are the interpreters called **'connectors'**.

Kohls (2014) defends the importance to invite the local community to design the tourism narrative. To that end, interpretation should encourage social interaction among tourists and with the guide and local community to assimilate the spirit of the place, with all of your faces (Shackley, 2000). To tell the stories behind the destinations, the staff has to be the first to develop the place attachment. The host communities are the safeguard of the stories of the relationship human with the place. Consequently, the guiding job requires becoming the link between local communities, government policies and eco tourists. Stakeholders – such as government and industry - have also part of responsibility in creating a real

ecotourism experience, ensuring the environment and well-being of the entire involved community (Fennell, 2002). To that end, the created participatory atmosphere shares and encourages information and knowledge. As a result, best environmental practices can be incorporated through the guide's performance in their **educator role** (Shackley, 2000). In addition, this joint process becomes a powerful marketing tool which can define the destination image.

- To conduct all these role tasks, Brandwein's guiding framework describes a list of qualities which must be promoted (Fennell, 2002).
- The guide must show a suitable motivation based on a positive attitude. The enthusiasm and excitement are the unavoidable factors in a good performance. Regarding communication, the guide has to be updated and providing the knowledge in good tune.
- At the same time, they have to become good listeners. The knowledge and concerns which are formulated by the tourists, have to be confirmed or rejected by the guide. Being aware of limitation and fears of tourists is an important task of guiding activity in order to empathize with the tourism experience. In conclusion, the guide must become a catalyst of the tourism experience.

However, current tourism has too much operation but little imagination, Borda (2003) highlights. Therefore, taking into account this new scenario, some extra key skills must be approached in the guiding training. To part of the technical skills; touristic-site knowledge, and languages, Shackley (2000) highlights other elements which raise the quality of guiding performance and marks the difference between styles, such as communicational skills to develop proper interpretation programs. Interpretation is the core of capacities for **storytelling guiding** (demanded by Ocean Literacy & Citizenship approach). However, despite essential value of the professional excellence, its incorporation in the official training of tourism is still residual.

To understand the power of the guide in the communication reference should be made a peripheral route of persuasive communication. According to the Elaboration Likelihood Model of persuasion (Petty & Cacioppo, 1986), the interpreter has to consider the context and the audience to get success: motivation and ability to process the message. Some

attitudes are built up based on little information and thoughts as some psychologists proclaim (Griffin, 2007; Paul & Elder, 2003). The same happens when the receptor shows poor motivation. In this type of situation, the peripheral route of the persuasive communication is activated. Although with less probability to succeed, it also can generate an impact. Managing elements such as creditability and likeability/ the gift of the gab; the communication style; the appearance (attire) of the interpreter, the trustworthiness of the source, a promise of social approval, and conformity can contribute. This matches with common visitor's behaviours such as choosing boat trips based on having the experts (biologists) as guides; or because they think that the guide was knowledgeable but they could not remember any information delivered. In other words, the credibility (expert guide) and number of arguments could be determinant factors to consider classifying the experience as a good quality tour.

Credibility is based on the image of trustworthiness, which is usually associated to the capability, skills and transferred knowledge. Kohls (2015) explains the Ethos - from study of rhetoric - as the reputation and character of the speaker. A good knowledge about the topic (the Logos) is the best way to feed the Ethos. Therefore, the staff has to be kept updated. The National Park Service U.S suggest that that knowledge has to be solid and accurate; built by multiple sources (multidisciplinary supported by experts); understanding the tandem tangible-intangible and its evolution along the time. The diversity of viewpoints allows reaching wider types of visitors (Bacher et al., 2007). At the same time, the likeability - referred to physical features or psychological and behavioural characteristics - is relevant in order to have a positive attitude to the arguments.

However, communication is a complex process to identify which factor impacts on the reception of the message as said above. Therefore, it must take account of other factors. The characteristics of the audience make an impact on the effectiveness of the message. Among all these individual factors, motivations are one of the most significant as the U.S. National Park Service proposes. Usually, tourists chose the destination due to a previous knowledge of recreational, educational, or inspirational nature (Bacher et al., 2007:13). Consequently, the diverse psychological theories about behaviour and motivations of visitors must be added to the training program for the staff.

Equally, for making tourist appreciate this connection with the place, emotional intelligence has to be cultivated within the staff training program (Varley & Semple, 2015). Borda (2003) - as defender of the 'society of dreams' - describes tourism activity as a business meant to provide the positive emotions to the clients. *'Interpretation is the helping of the visitor to feel something that the interpreter feels - a sensitivity to beauty, complexity, variety, interrelatedness of the environment; a sense of wonder; a desire to know. It should help the visitor feel at home in the environment. It should help the visitor develop perception* '(Wallin, 1965 cited in Bacher et al., 2007: 4). As a consequence, the promotion of interpersonal skills is a purpose of the scheme where the emotional labour keeps that emotional sphere healthy. Likewise, the innovative and creative spirit in the professional scope is promoted by this educational strategy. On the other hand, all this training effort includes as one of its main purposes to instil a philosophy of best practice among practitioners. To achieve this aim, the guides have to be involved within frameworks of continuous improvement with feedback dynamics and take stock of them (Fennell, 2002). In this way, the guides reach the acceptable level of proficiency based on continuous education and experience. This perspective makes the difference within guiding activity.

Concerning the channel, although the interpretation carried out by the guides is the best way to connect visitors with the place or resources, other interpretation ways are supplied such as brochures or panels (Shackley, 2000). The chosen media to provide the message could modify the effectiveness about the message. The selection is based on the objectives of the interpretation programs; understanding of tourism resources; and the S.W.O.T of each technique (Bacher et al., 2007).

In conclusion, the interpretation program has to be conducted by well-trained guides who handle the communication techniques where the tangible values of the resources are enriched with their intangible values, and connected through universal concepts. These messages have to be organized in themes in which the interpretation programs are defined (National Park Service, 2018). These programs must be addressed to trigger the sequence of provocation – reflection – meaning – beliefs – attitudes – intentions – behaviours, argued by Ham (Morales, 2006).

## 2.8 Ocean citizenship

This project is about how to show the fourth dimensionality of the Ocean (Court, 2012) which allows living the story of the local seas. To that end, the knowledge is chosen as the vehicle. However, this knowledge has to be ´translated´ in order to bring the Ocean into society´s life (ocean citizenship). The experience must be conducted under the philosophy of infotainment with the bone back of interpretation (TORE framework) and with the strictness of accurate information. In addition, Interpreters should not use their knowledge of the resources and the intangible/universal meanings associated with them to offer only bland recitals of non-controversial 'safe' facts. In this sense, the National Park Service U.S suggests that sound interpretation embraces a discussion of human values, conflicts, ideas, tragedies, achievements, ambiguities, and triumphs (Bacher et al., 2007). To achieve this literacy aim, it must be approached by provocative interpreters with tools such as teleological codes (defended by Cole, 2007; and Garrod & Fennell, 2004) and stories with ocean citizenship included. The environmental situation requires this type of narrative.

The public goods suffer a blurry stewardship due to a phenomenon named '*the tragedy of commons'* described by Hardin which show that the common-pool resource suffers from an unclear legal right to use (Cater & Cater, 2007). Individual benefits are usually above collective benefits, reducing the opportunities for others. Regarding the Ocean, the situation is more complex, if it's possible. Due to its massive size; it is an unfamiliar ecosystem for human beings; life happens out of human eye; and it is shown as a monocratic landscape which covers the small changes, this tragedy has multiple consequences. Its massive and liquid borders create uncountable difficulties to define the legal barriers. Consequently, this open environment with multiple resources tends to be overexploited, situation named the '*tragedy of open access'* by Lynch (Cater & Cater, 2007). In addition, life happens below the horizon, creating a landscape dominated by a unique colour. Everything is blue for the terrestrial animal who is the human being. As a blanket, the horizon covers what is happening down there, including the impacts of our actions. Therefore, the responsible for its fast change, the human being, is far away. As is said 'what the eyes don't see, the heart doesn't feel'. Hence, the *'tragedy of blue blanket'* means a real challenge for the empathy towards the Big Blue. In addition, the Ocean endures another tragedy more, *'the tragedy of*

*lack of human interest*' (Principle 7 of Ocean Literacy). Although civilizations have evolved alongside their seas, the knowledge about the Blue Planet is very limited and poorly spread.

Co-responsibility is defined by the nature of the individual and opportunities to be involved. In this sense, the situational factors (individual and collective) such as psychological, social, economic and physical limitations can impact on eco-friendly behaviour (Whitmarsh & O'Neill, 2010). As a result, the environmental citizenship can include positions of indifference, ignorance, confirmation and resistance (Van den Berg, 2017). Nowadays, one of big challenges is to deal with the called '*deniers*'. This position can come from different barriers such as the economic (eco-friendly products are more expensive); the ethic (humans over nature as set beliefs) or particular interests (supporters of crude capitalism). Consequently, the entire system has the challenge to mitigate these barriers to set up the pro-environmental identity as society. The educational approach towards the citizenship is one of these attempts with the creation of an identity based on reflective decision making. Good information, ways to develop critical thinking and exposition to the issue, are the ground to integrate these personal political identities to larger causes (ocean protection). It means that the collective intelligence of individual and joint actions is becoming a key strategy to reverse the damaging trend (BBC, 2006).

The Ocean citizenship is a marine version of a concept which has been developed recently under several names (Van den Berg, 2017) which show the evolution of the environmentalism nomenclature: '*green citizenship'* (Dean, 2001); *'environmental citizenship'* (Dobson, 2003); '*ecological citizenship'* (Evans, 2011); and '*sustainable citizenship'* (Micheletti & Stolle, 2012). Joining together citizenship and environmentalism gives the opportunity to involve the entire society into the achievement of collective social, political, and environmental goals. Global challenges cannot be addressed only by a governmental approach (Dobson & Valencia Saiz, 2005), it is a shared stewardship, especially when the largest public good is regarded, the Ocean. The inner interconnectivity of the Ocean obligates that the responsibility for its (our) wellbeing should be shared and international.

The environmental governance follows a down-top dynamic where the actors on the ground shape the policies (Van den Berg, 2017). The government regulates and society audits. It is a

co-management where the *'common good'* is the priority. As a result, the public plays a key role in the development and implementation of marine policy. The general benefit for them is to belong to a society identified as ocean-friendly where the sustainable development philosophy becomes part of that priority (Fletcher & Potts, 2007). Consequently, ocean citizenship is a suitable mechanism to revitalise the community feeling towards the paradigm of sustainability. In return, society should integrate values, understandings, and attitudes which define individual behaviour. Individual practices are the way that values can be reflected in actions (Bennett, 2012). The trigger of this participation has shifted to more personalized frameworks of identity which impact on the volition of the action. One of the most popular, in contemporary western cultures is in lifestyle changes.

The water in our lives is this kind of factors which impacts in our lifestyles. The characteristics of locality are a variable involved in individual behaviour (McKinley & Fletcher, 2010). These same authors (2010: 381) explain that the bond with the place can be generated through historical connections, *'memories and family connections', and 'holidays and recreation'*. According to the ancient mind map mentioned above, the water is good for us so we need to be close to the water in order to feel happy (Wallace, 2014a). The value of the proximity results in the called *'the cognitive value of water'*. Consequently, marine tourism shows its potential to provoke *'environmental awareness'* related to the aquatic ecosystems (Wallace, 2014a). Taking into account that the diving is a bodily-kinaesthetic activity within water, the immersion can develop the ecological-self of Naess, a philosophy which goes in depth into the relationships with the Nature with the purpose to coexist. The inner consequence of this approach is to care for any type of life and; being aware of our role in the entire network. As a result, the altruism of conservation is naturally adopted (Iglesias, 2009). According to Wallace (2014a), altruism contributes to the improvement of the feeling of happiness. This is one example of the potential which tourism industry has to make the difference. Indeed, wildlife tourism is one of these types that should facilitate *'a positive difference in the world'* (Ham, 2013: 93). People want to feel that they can make the difference with their actions, *'Stand up for Oceans*!' (McNeese, 2015). This trend opens the opportunity to develop the commitment to the activity and the marine realm at early stages in the diving activity (in the scheme). However, the studies have reached limited conclusions related to the factors which define the grade of participation in the activities (Brey & Lehto,

2007). Considering the specialisation as a progress, the associated behaviour relies more on the acquired skills and knowledge than the technical equipment available (Scott & Shafer, 2001 cited in Huang, 2014). These same authors argued that through uninterrupted practice and participation, specialization could be reached. However, nowadays, in the leisure context, this level is barely reached due to several factors such as the variety of activities to practice during the holidays where wildlife observation is just one more thing (Curtin, 2010); budget limitations; or other personal factors. As a result, the generalist is usually the leisure participant (Kuentzel & Heberlein, 2006 cited in Huang, 2014), where the commitment with the activity is drawn by factors such as the support from others or available opportunities.

At present, society lives the era of self-fulfilment (Leira Landeira, 2011) with the freedom of choices; and where the *'good citizen'* behaviour has more relevance; and citizens live in *'a complex and interlocking world'* (Farasi, 2017). This personalization of participation reaches large-scale individualized action with phenomenon such as the '*activism from home'*. Many causes demand personal change of behaviour, using social media and other personalized communications. However, these strategies start to be more inclusive, to contribute to a bigger cause. With a stress on 'we', individual action becomes a collective action. The switch from ' *you can make it*' to *'we all can make it'* is the new motion. This strategy is more relevant when the cause is the ocean. However, regarding 'blue issues' activism must be tutored by the lack of - individually and collectively - reflection. The lack of memory of marine place impacts on making decision process. Consequently, inadequate behaviour in the seascape can be the product of absence of clues to understand the water world. As a result, this activism is vulnerable to any trend regardless of its veracity.

On the other hand, its global interconnectivity requires thinking at major scale than the individual. Again, the geography related to ocean citizenship is fundamental as Fletcher & Potts (2007) defends. The Earth Science (ironically) is the way to explain the interrelationship between the sea and the land; and how the actions on the land impact on the sea (vice versa). Likewise, this scientific knowledge teaches to them that the immediate outcomes will be not part of the reward for their behaviour change. As it is said before, nature dynamics operates at long-term scale. The frustration related to these overwhelming goals must be avoided in order to keep them in this new citizenship. Consequently, the accurate message is that *'many single actions'* can make the difference. The involvement

can be individual but toward the collective gain (Micheletti & Stolle, 2012). In this way, the pressure on the self is reduced in favour of working as a group. To achieve this aim, firstly, the distinction from global to local level is considered (McKinley & Fletcher, 2010). It is understood that the local level is the nearest to the community, therefore the management narrative highlights local governance. Meanwhile the national sphere is in charge of strategies and guidelines towards policy-making. All of these levels are part of the dialogues with the marine environment but from multiple approaches.

Regarding tourism, Hall (2001) points out that the multifactorial nature of coastal tourism makes it more difficult to be understood by the authorities. The widely studied estimation of tourism impacts lacks importance in the decision making process for coastal development (Clark, 1995). Consequently, their negative results are handled in a reactive way, instead of implementing active measures and policies (Hall, 2001). Among the latter, a better integration between different knowledge and interests - socioeconomic development and environmental protection - is the challenge for policymakers. One example would be the development of suitable education/information/interpretation done by businesses and users in coastal and ocean tourism (Hall, 2001; Ham, 2013). To get it, a strong network of ´blue´ stakeholders is the ground where the government, science, private sector, and society, are the main actors.

In this line, there are efforts such as the Green Bubbles project (funded by Horizon 2020) which aim at contributing towards the European Blue Growth Strategy, especially with the reunification of dispersing available information (due to the chronic segmentation).

> '*A more successful diving industry is not only desirable from a socio-economic point of view but also more likely to be sustainable. Green Bubbles will demonstrate that research in sustainability can support the industry, reinforcing collaboration and mutual understanding*' (Green Bubbles Rise Consortium, 2014:5).

In this way, the ground for the co-management of public goods is more feasible, increasing the public profile of the seas. The ownership/stewardship of the marine environment is encouraged within a part of a new societal world vision. Ocean literacy in diving activity gathers the knowledge and opportunity to empathize with the identity for an ocean citizen.

Once the theory is covered, the following chapter 3 sets the methodological guidelines which defined the process of the knowledge gathering and their later analysis. These decisions allowed the results shown in the second part (chapter 4 - 6) to shape a diving experience with Ocean literacy & citizenship in Mallorca Island.

# Chapter 3. Research Framework

This purpose of this chapter is to establish the research guidelines of the project. The methodological bases were defined in order to guarantee the rigour and success of the research. The philosophy, approaches, research strategies and the techniques were defined principal pillars of the research study. Once the main research questions and objectives were clarified, the next stage was to establish the structure of the study, to ensure that the main objective of the study was implemented under the orientation of the research questions, and especially in relation to the chosen case study. . The conclusion of this chapter includes an analysis of the knowledge gained, and a consideration of the limitations to this research project.

The chosen framework was a qualitative inquiry, selected as the principal aim was to understand the potential of 'Ocean Literacy' in recreational diving. The uniqueness of the interaction between this educational stream and this particular marine tourism activity necessitated an exploratory strategy, followed by a descriptive phase. Therefore, the potential interface generated among the social actors, the study object, and the action context required detailed 'dissection'. To carry out this analysis in depth, the qualitative study was required. The participants in the activity were the core source of information, adopting a bottom-up approach. As 'grounded' character of the method, the analysis of the observed scenario was led by social sciences. In addition, tourism is a dynamic phenomenon where the motivations, beliefs and reasons for travelling are varied and complex (Hvenegaard, 2002). Therefore, these key factors are best obtained directly from visitors through qualitative methods such as interviews (Holden & Sparrowhawk 2002).

Within this context, the multidisciplinary characteristics of the project were crucial in defining the methodological decisions. Tourism dynamics; the ecology of marine ecosystems; the psychology of behaviour; interpretation techniques have formed the basic mosaic of knowledge as a foundation of the research. That meant the entire project was designed as a constructive attempt towards interdisciplinary, whereby the flexibility was the main guideline in order to reach a holistic perspective. As Saunders et al. (2009:155)

suggest, researchers should '*use your imagination and to think of research as a highly creative process*'. To achieve this purpose, interpretivism was the central philosophy in order to understand the phenomenon or realities which converted in that space-time locale. Following the action-research philosophy as primary intent, the constructivist approach was used in addressing the third question. In this way, taking into account the uniqueness of the combination (Ocean Literacy & citizenship in recreational diving), it gave the opportunity that the subjects of the study define the object of research through their participation. They are the interaction and the discourse on which lay that creation, as Holstein & Gubrium (2008) remembers in their article about constructionism in ethnography, therefore subjectivism was the main guideline adopted as a result of confronting the necessity of collecting perceptions, opinions and knowledge from different perspectives and backgrounds within a tourism context. However, although any reconstruction is sensitive to the context, noticeably the generalisation was considered in terms of the diving structure where the Ocean Literacy approach could be implemented. The thematic analysis was the technique selected to define that context through a rigorous coding system which was the result of the interaction between theory and practice in Mallorca waters.

## 3.1 Philosophy

Personal principles, assumptions and world vision influence the way the researcher constructs knowledge, uses the established paradigms and includes their own values in the study (Saunders et al., 2009). At the same time, as Johnson & Clark (2006) point out, the most important factor during the process for defining the philosophical approach is to reflect on the choices taken and maintain the coherence implicit in the entire procedure.

The choice of the main philosophical approach was carried out following the guidelines defined by Weber who formulated the concept of '*empathetic understanding*' as the core of epistemology, axiology and ontology of any project. In developing this type of appreciation, the emotional context of the action should be conducted through a '*sympathetic participation*' (Weber, 1978). This means that the reality is multiple and it is built from subjectivity and therefore, the qualitative methodology must be implemented from an insider's perspective, in the real world or natural setting (Jennings, 2001). As a result,

knowledge is built through a constructive and collective process where '*the knower and the known must be interactive'* (Tashakkori & Teddlie, 1998). However, these authors suggest that theoretical reflection is understood as a continuum and that the researcher should understand when the interaction is necessary (emic) but also on which occasions to stand apart to gain perspective (etic).

These challenges were assumed, taking into account the ontological, epistemological and axiological basis developed under the interpretive philosophical paradigm with constructivist approach.

### *3.1.1 Ontology*

The ontology of the project is described by the paradigm of the social construction of reality, which can be multiple, changeable and eminently subjective. The weight of subjectivism in this project was supported by the suggestion of studying in detail the context where the project is carried out in order to reveal the subjective meanings which provoke the actions of social actors. Understanding these social constructions could be determinant when the researcher has to appreciate and admit motives, actions and intentions of social actors involved in the study (Remenyi et al., 1998). In this sense the techniques of ethnography were crucial: participant observation; interviewing; document reviewing.

The study objective is to understand the bond between the marine realm and the general public in the diving context. These relationships are usually developed by social constructs related to the study object. Therefore, how divers see the undersea world is associated with a set of cultural images which act like a lens to look through. To understand this process it is pertinent to refer the reflections of authors such as Moscovici, Herzlich (1979) and Banchs (1984). They defend the social determination of these constructs from two levels: central and lateral. The first is based on collective influence, due to elements such as the prevailing ideology, information provided by the media and hierarchical and powerful structures in society. The latter centres on the experience and motivation of the individual; that is, the social psychology of the person. From this theory, it is possible to conceptualize the object of study, the link with the Ocean from the point of view of the official discourse of the marine settings; of the myths about the Sea and traditions; and of the social structures in

force as a way of establishing the frame of reference. At the same time, from the individual conversations and behaviours, the central social framework usually is transformed. Here, bearing in mind what Moscovici names the '*revolt of the minorities*', personal or minority growth can be opposed to the social mass product of centralized and rational planning. Therefore, it can be established that the behaviour and conviction on a concrete point of view is more persuasive than the one from community or even an expert. This supports the subjectivity strategy through interpersonal communication, specifically the conversations as a method of transformation themselves.

Realizing a structural reading of these theoretical considerations, the methodological decisions, observations and interviews as main method; and the case study fitted for the ontological consistency. The project was carried out in Spain, where Western culture is the main world vision which establishes the guidelines to organize knowledge, including within academia. In other words, the social actors of the study (Spanish, German, British and French nationalities, mainly) and the researcher belong to the same world vision. The human relationship with the Ocean comes from the similar socio-historical background. Consequently, a priori, no bias or cultural clash is expected during the all phases of the project. The interpretive analysis was carried out by the same mind framework. However, at the same time, the exploration, description, and analysis regarding the lateral level of social constructs are crucial to understanding individual behaviour. Thereby, the interviewing process focused on individual perspectives in order to understand the factors which influence these specific social representations of the Ocean, keeping the researcher with the common storyline but exploring the particularities of individual experience.

Ultimately, the project suggests that the staff, through the briefings and personal behaviours, can be a facilitator of the new marine representations, raising the interest in knowledge. These gatekeepers can promote a new world vision, where the Ocean achieves greater weight in Western Culture's social representations of Nature.

### 3.1.2 Epistemology

The study worked with perceptions, opinions and knowledge (scientific and empirical) related to the marine macro ecosystem. The inquiry promoted participants to look their nexus with the sea and to think about it. Therefore, on one hand, the study was developed into an observable social reality built by the recreational milieu; on the other the research explored the factors which intervened to assume particular knowledge and adopt particular behaviours. In light of the fact that the behaviour cannot be reduced to a simple phenomenon without any influence, the circumstances around it must be understood in order to define how the knowledge is formed. The epistemology followed this line of knowledge where the subjective meanings are the leitmotif for the actions. In this sense, according to Jordelet (1984), the structuring of social representations is based on elements such as context, the communication established and the forms of learning. In this context, knowledge about the Ocean is not a priority within the education system of Western countries. It is studied at superficial layer and without proper integration within the environmental spectrum. As a result, laypeople develop a more empirical knowledge of the marine ecosystem rather than scientific-based one. These social processes usually accumulate inaccuracies, out-dated facts and stereotypes. In addition, the wisdom or lore surrounding oceans, often referred to as a mystic 'element' with a strong historical bond to society, is constantly negotiated by codes, values and ideologies (Ferrés Gurt, 2010). All this mosaic generates the cultural background which guides the marine knowledge and the behaviour in regards to it. As Colom Mendoza (2013) mentions about the sailing techniques according to the knowledge of the winds in Roman times, or Ferrés Gurt (2010) explains the relationship of the fisher people with the Mediterranean. Consequently, the socio-epistemology sets the tone during the fieldwork and analysis to follow. This branch of epistemology advocates the social construction of knowledge where the experience impacts on it dramatically (Cantoral et al., 2015). In this way, the research study supported the strategy that The Ocean Literacy must be included into the formal structure of the diving activity. Therefore, the institutionalised educational guidelines of this stream became one of the main guidelines to work with stakeholders. The history of diving training, the business organisation around the diving activity and the current social cultural context related to this

leisure activity formed the framework where the socio epistemology was developed. In other words, the collectivisation of the knowledge was acknowledged, or as Cantoral & Farfán (2003) suggest, greater emphasis was placed on the practice instead of on the object.

In addition, the study demanded a broad socio cultural scenario of the epistemology, including the individual and collective psychology. The attitude related to the study object adopted by people in different social scenarios can play an important role during the course of the project. In this case, the diving activity has a self- imposed 'green' image which can sell the researcher an illusion about their real connection with the marine environment. This 'stance', the role of eco-friendly diver, was present at tourist and staff level. As a consequence, '*the challenge was to enter the social world of our research subjects and understand their world from their point of view'* (Saunders et al., 2009: 116), which suggests the use of phenomenology and symbolic interactionism.

The symbolic interactionism suggests that the social interaction creates and internalises the bond between the subject and object across time (Jennings, 2001). The language and social environment contribute to the interpretation and modification of the nexus, through self-reflective individual interaction with others, as a constructive loop. In the research study, to achieve this aim, the system of meaning associated with the marine realm was approached with questions related to the significance and importance the Ocean in the participants' lives (n. 6 and n. 14 of appendix 5).

Additionally, a phenomenological approach was included with inquiries related to the feelings during the dive experience. This was a domain explored mainly with the tourists, although it was considered with the crew as well. As Jennings (2001) highlights, the senses are the vehicle to understand the experience. In this sense, Cater & Cater (2007) point out that the increasing weight of the emotions in the experience has derived to the Turner's *'somatic society'*. Consequently, these same authors argument that the embodiment factors are part of the new tourism gaze, therefore, they must be considered in the study of the experience. Regarding it, how that experience is expressed into words is the way that the experience makes sense for the person (Jennings 2001). Interviewing has proven to be a good technique to facilitate this dialogue through their senses.

To conclude, the socioepistemology followed a heuristic process whereby creating solutions for the absence of The Ocean Literacy guided the entire thinking. The steps during the fieldwork were similar to the ones which were postulated by Moustakas (1990) with an initial exploration and connection with the topic in the context; immersion in the routine of the activity; incubation or meditating on the information; discovery of findings; description and finally, drawing suggestions to reverse the situation.

### *3.1.3 Axiology*

> *'..our values are the guiding reason of all human action. (…) researchers demonstrate axiological skill by being able to articulate their values as a basis for making judgements about what research they are conducting and how they go about doing it. After all, at all stages in the research process you will be demonstrating your values'*
>
> (Heron, 1996 cited in Saunders et al., 2009: 116)

The structured observations of the diving trips were carried out through the observation template, and the factors to check were pre-designed in objective way to test the Ocean Literacy in the current diving performance. At the same time, the role of the crew was also explored in interviews with them and (more informally) in sharing time in the diving centres. This latter strategy required more interpretation of the elements involved in their daily routine.

As was mentioned above, social representations can reconstruct and reproduce the reality and, as a result, guide behaviour. In the same way, these social constructs are determined by the social structure in which they are immersed. Given these precedents, the researcher was aware of this influence, and of the need interpret the reality presented to her. At the same time, the impact of her own socioeconomic and historical conditions on the 'reading' was considered. In this respect, based on the fact that the planet is immersed in an environmental crisis and therefore a human crisis, the work was imbued with the political, social and environmental ideology that the researcher possesses regarding conservation. In other words, the main leitmotiv of the study and key message during the interaction of the field work was that the Ocean must be known in order to be protected.

Further, the project aims to encourage the transformation of our current indifferent connection to the Ocean through knowledge. In addition and indirectly, it was expected to

mobilize attitudes within the diver community in favour of a collective responsible environmental behaviour. Consequently, this would make them feel proud of their cultural and environmental heritage.

To achieve this aim, the entire methodology adopted a bottom-up approach to research the social context, where the interviews (unstructured and semi-structured) were the main method to explore this social environment. In other words, although the researcher has background in the natural sciences (ecology), social science was the lens chosen to look through: for example, the tone of the tourist interviews was driven by the ecological vision of the diving activity (these environmental values were visible for all participants of project), but in order to reduce influence of the biosphere belief of the researcher, thoughts generated and shared during the ethnography were supported by other information sources (such as scientific studies or reports from social organizations).

## 3.2 Research approach

The approach taken in the research project into exploratory and descriptive phrases was inductive research and therefore a (tentative) explanation form part of the findings. The main reason for opting for this path was due to the fact the subject area is still an emerging concept within the tourism research field. There is limited literature on Ocean Literacy related to marine tourism, particularly underwater tourism, therefore the precise nature of the situation remains uncertain. In order to contribute to this emergent field, the study was designed to gain the insights through the fieldwork as Saunders et al. (2009) suggest. This empirical approach also followed what the same authors propose in these early stages, an exploration strategy followed by a descriptive strategy. Knowledge about the Ocean Literacy in the recreational diving activity was at the core of this phase. Afterwards, the description was the precursor to explanation (Saunders et al., 2009) therefore the project reached the descripto-explanatory phase. The connections among identified factors constituted the thread to be followed. For it, the network of social actors was described and analysed according to a number of factors, including: their connection with the marine realm; their knowledge about the Ocean; their commitment to the Ocean citizenship. The study was conducted under the qualitative approach.

Once the structure was identified, it was agreed that a quantitative study would be the most suitable approach. As Wynveen, (2012) suggest, the quantitative measures should not be used to identify meanings ascribed to particular settings. This position has as a foundation that the *'place meanings are the result of participating in behaviour settings that may be unique to the individual and the setting they visit'* (2012: 295). In fact, authors such as Kyle & Johnson (2008) maintain that the cultural and socio-economic differences are relevant to develop particular meanings and attachments. However, with the foundational variables, a massive collecting technique such as questionnaire implemented in the same setting could support the framework designed previously. In this context, the quantitative measures would be useful to confirm or reject the experience of some of divers (sample). In addition, the evaluation of the significance of the correlations among these variables would bring more meaningful to the established business model of the diving centre. As a consequence, the mix methods could enrich this standard ground. The combination of quantitative and qualitative techniques is more and more common, including in the business research field (Curran & Blackburn 2001), but first of all it is necessary to describe and understand this activity ground. For it, the research was conducted with the purpose of drawing the picture of the recreational diving in the area with the integration of the Ocean Literacy and its impact on raising marine awareness. Tourism dynamics, societal tendencies; individual and collective factors were highlighted through the process as an explanatory travel. However, the inductive process takes time, and it is expected that knowledge, ideas and findings, in general, emerge gradually during the entire study. Therefore, this requires flexibility where the direction was always present but with certain elements to be modified by the on-going revelations, as Adams & Schvaneveldt (1991) maintain for exploratory projects.

Knowledge was generated through the qualitative methods of semi-structured interview and participant observation mainly in order to comprehend the dynamics of underwater ecotourism. That is to say, the roles of the each social actor and weight of their circumstances (institutional; educational and operational, primarily) were embedded into the proposal. The chosen approach allowed the researcher to dig further beyond the categories and pre-established knowledge, outlining the feeling and ways of thinking of social actors. This Bryman (2012: 402), suggests,

'*(…) inject a sense of process into our understanding of social life. It can also be achieved through semi-structured and unstructured interviewing, by asking participants to reflect on the process leading up to or following on from an event*'.

Ultimately, and as a consequence of this collective reflection, it must be mentioned that although the aim was to understand and explain what was currently going on, the concern was also about promoting change in the order of things, considered through the entire study. As Fals Borda (2000) advocates,research should break the tandem of subject-object, assuming a more tangible commitment with the social actors involved during the study. Therefore, despite not following action research as initially intended, the researcher was involved in the promotion of small actions in order to incorporate protection of Oceans inside the diving sector (e.g. Sea Watchers Programme). This demonstrated credibility and coherence to social actors about the Ocean citizenship to which the project subscribed. At the same time, this procedure could ensure research generated some tangible benefits for the social actors involved. In other words, the participatory strategy allows for carrying out a more democratic transformation between the researcher and the subject (Holmes et al., 2016).

### 3.2.1 Strategies

#### Ethnography

The main strategy adopted in this study was ethnography carried out through a case study. Ethnography seeks to study a social phenomenon inside the specific context in where it occurs in order to capture its holistic perspective (Burns 1997; Fetterman 1989; and Harding 1991 in Jennings, 2001). Those same authors emphasize that the identification of multiple realities or perspectives are one of remarkable principles which can guide the process of meaning production and understanding. In order to achieve this, immersion in that social setting for a extend period of time is required, where people's behaviours are the route for the understanding of that social phenomena (Bryman, 2012). All of the above reasons explain why the role of the researcher in this type of studies is particularly salient. In this sense, as Fetterman (1989 in Jennings 2012) advocates, the project assumed the emic perspective for the fieldwork and the etic perspective for the analytical phase and writing production.

The commitments with the topic and social actors which the researcher assumes should be reflected into the ethnography with emic perspective as part of 'voices' of the project. The emic approach defends that the insider's view is the best way to identify the multiple realities. Therefore, the researcher must enter to the social setting and become another social actor of the context (Blumer, 1962 in Jennings 2012).

Within the different roles of ethnographer which are described by Bryman (2012), the *Partially Participating Observer* during the shoulder season and *Minimally Participating Observer* during the peak season fit in this study. Although, the research was strengthen by solid interviewing process with the main actors (staff, divers and stakeholders), the act of observation was fundamental throughout the entire project. However, due to the inner characteristics of the recreational diving industry (the access to the activity limited by the capacity of diving boats) the researcher could not be part of the diving trips during the most intensive activity of the diving centres. Therefore, the comprehension of the activity was developed as observer and interviewer in the centres.

The study was carried out through an overt ethnography whereby the researcher was clearly identified as such for much of the time. During the time of the diving centre, the researcher wore a ‘research’ tag and was introduced to the divers by the staff as required (for interviewing or observing in diving trips, etc.). However, social psychology suggests the observer can change the observed event (Aiello & Svec, 1993), due to the fact that behaviour is frequently modified when a social actor knows that they are being observed. In this respect, the researcher was aware that staff could be impacted by 'eye tracker awareness' during the diving performance as described by Risko & Kingstone (2011). Therefore, taking into account that this effect is transient, the habituation was the technique to counteract this effect. The first observations were taken as a way to create working atmosphere with the staff and as time to know each other. After that, the consistency of their behaviours (included the information transfer within the diving framework) was the objective of the participant and structural observation in order to find the working structure of the recreational diving activity and its relation with the Ocean Literacy. To obtain the required level of coherence, the time invested with the social actors is a crucial factor to create the atmosphere of mutual trust. In this point, ethnography has been revealed as suitable strategy.

### 3.2.2 Validity of knowledge gained

In regard to the legitimacy of insights gleaned and the knowledge production, the corroborations follow specific paths in qualitative studies. As constructivist research the following quality criteria must be assimilated: adaptations justified; systematic, consistent, coherent, and conceptual rigour; transparency; and reflexivity (context and researcher) as Yardley points out (2000). The reflexivity took place while designing, conducting, and writing up. However, despite accepting this view, the project tried to deal with the inherent subjectivity of research. On one hand, triangulation was one method to reach 'objectivity'. As the rigour of the ethnography strategy insists, triangulation was implemented from a disciplinary and methodological approach. To achieve this, different bodies of knowledge were included during the course of study: tourism; environmental psychology; education/interpretation; and sociology were the main contributors. Likewise, the gathering of information followed the same strategy to reduce the potential bias. The longitudinal study, multiple techniques and respondents and study sites assisted the validation of the gained knowledge, reducing any potential bias. The use of different techniques of data collection such as (semi-structured and unstructured) interviews; (structured and participant) observation; and diary record (research journal) guaranteed an approach to the object of study from different angles. The content validity was implemented along the project in order to control the potential bias or inaccuracies. For example, the internal validation in the collecting techniques achieved through the checking questions (explained in detail in 3.4), and therefore the idea of confronting the findings was guided by these cross-cutting procedures. The combination of the insights with different social actors and documents was used as double guarantee of the understandings accuracy. The 'inter-rater reliability' was another way to diminish the bias. Afterwards, in order to build up a narrative more objective about the studied phenomenon, the social actors must be kept aside from the analytical phase, although the researcher can come to them for the confrontation of ideas and confirmations of findings (Fetterman, 1989 in Jennings 2012).

As a result of the above mentioned strategies, this study followed the multi-method research approach (Saunders et al., 2009), where the knowledge was gathered qualitatively through semi-structured and unstructured interviews, with significant supporting research

activity undertaken using techniques such as participant observation and the research journal. This methodological choice contributes to the management of the 'method effect' in the results, increasing confidence in the reliability of the conclusions (Saunders et al., 2009). With regards to the analysis, thematic content was the method used in order to identify and understand the main elements that must be the foundations of the emotional, cognitive and normative structure behind recreational diving with the Ocean Literacy implemented.

## 3.3 Research Design

This project was guided by the frame of qualitative research in which the strategy was ethnography. The process was led by an exploratory phase as the first stage, followed a description-explanatory phase and the development of a toolkit (diving framework). The study was carried out mainly under the inductive reasoning, where the flexibility was the guideline in order to reach the holistic perspective but with some deductive stages along the theoretical integration (the development of the basic category system and the assessment phase). As was explained previously, the research questions led the information collection through techniques of participant observation and semi-structured interviews mainly but with the leading role of the research journal as any ethnography requires.

The findings allowed the understanding of the realities that converge in that space-time scale. As with any reconstruction, it was sensitive to the specificities of the context, but with the constant challenge to aim for generalisation. The following figure n. 12 shows the path taken by this study.

***How can underwater marine ecotourism contribute towards the place-based marine environmental awareness through the Ocean Literacy?***

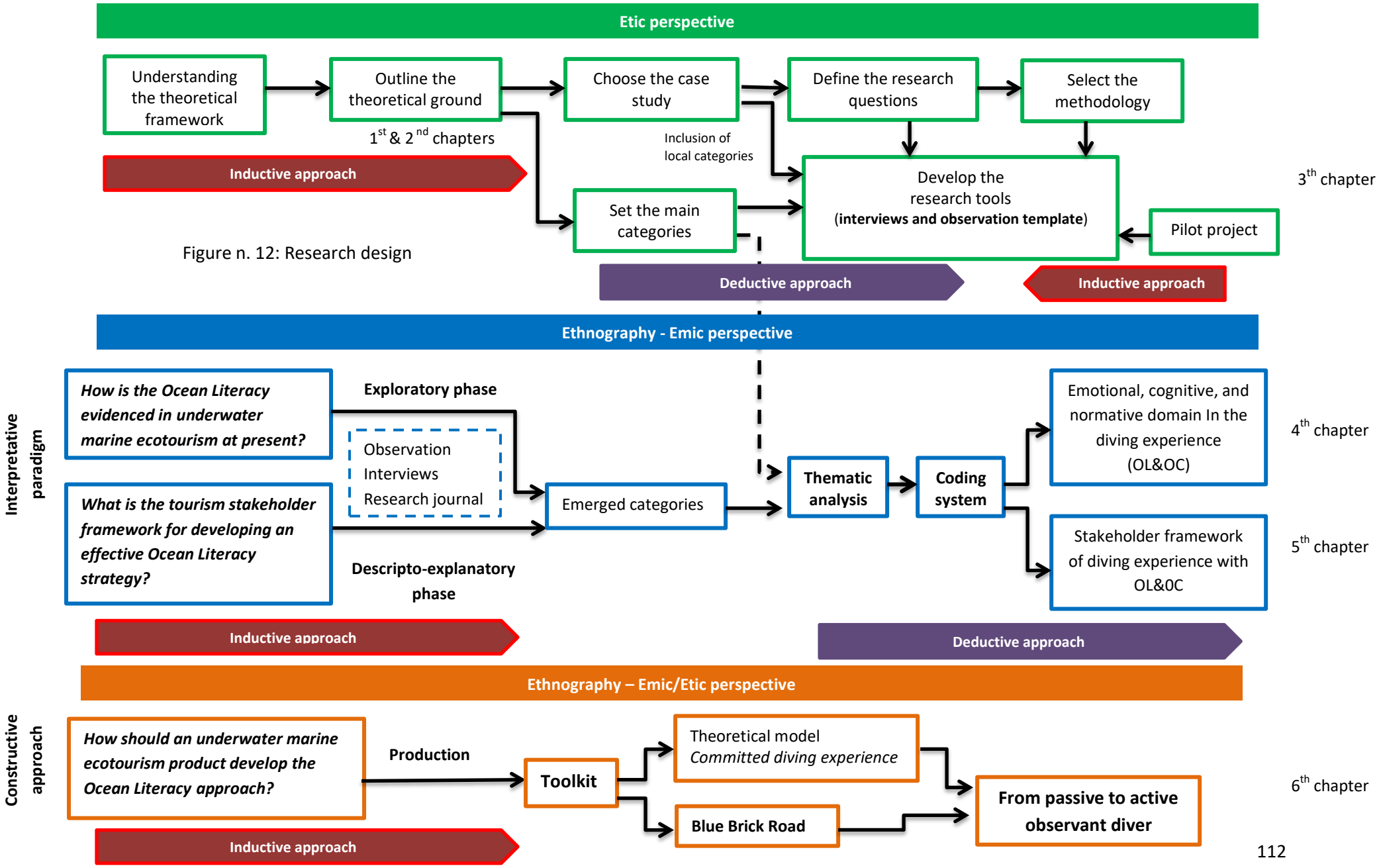



Figure n. 12: Research design

The initial phases were carried out from an etic perspective as is typical in academic exploration phase. The starting point was the unfavourable situation perceived by the researcher about the poor Ocean Literacy implementation in the performance of recreational diving at present.

The objective was to define the subject of the study and its associated categories. To get it, the introduction and the theoretical framework, represented in the first and second chapter, -were the ground for the development of that list of categories and the base of the research design. The principal areas of study considered are showed in the table n. 1

Table n.1: the main categories of the study

| Motivations and psychological characteristics of the dive experience |
|---|
| Diver's satisfaction |
| Emotional connection with the marine ecosystem focused on the eco-self-notion |
| Cognitive interest through seeking information habit and concept of ecosystem services |
| Normative framework studied from the eco-friendly philosophy and feeling and moral obligations (Ocean citizenship) |
| Unifying theme of the initiative, the 'the Ocean Literacy' notion |

For more detail about the impact of these items in the research objectives goes to the research framework in the second chapter.

The selection of an appropriate case study was a priority. The characteristics of the location usually impact significantly on the entire research design, defining the final approach, frame and researching questions. Consequently, the selection of the case study is become a cornerstone in the decision-making process of that type of researches. The island of Mallorca was the chosen place (for reasons, please see the section 3.3.1).

Once the Mallorca was the chosen location, the previous list of categories was re-defined to reflect pertinent local connections, and to include the local marine ecosystem, the Mediterranean. The theoretical characterization of the local context meant the completion of the research scenario, including the central research questions. As a result, the research

tools were developed to reflect as much as overarching themes deemed important by the research purposes, such as the Ocean Literacy and Ocean citizenship, as local themes.
It is important to note that these elements have to be treated as 'draft proposals' due to the fact that the 'social interaction' remodels the entire study framework, particularly when the strategy is engaged in the collective knowledge production.
The interaction with the Mallorca diving reality was begun on April of 2016 and after covered the peak season, was closed in September of the same year.

The fieldwork began with the initial exploration of the chosen place. Two main purposes drove this stage, being carried out simultaneously. On one hand, the theoretical categories initially established in the study were validated. This is the main purpose of the pilot project. That initial exploratory research enquired into the influence factors in the dive experience of Mallorca and in the interpretive communication strategy in the diving offer associated:

- How the Ocean Literacy was related to the Mediterranean with notions about the local marine biodiversity;
- The current health of the Mediterranean;
- And their protection attitudes towards the Mediterranean.
- Likewise, the socio-cultural links with this historical sea was not either dismissed (for example, Mare Nostrum).

That early task was done unilaterally so the study was still delimited inside the standard research. Despite this, the original idea of joint participation was kept for the following interaction stage. This could be carried out through the second purpose, developing the research protocol for the fieldwork. The mutual understanding between diving centres and the researcher was driven to the creation of a mutually beneficial situation. Therefore, in the course of the fieldwork the tandem subject/object was broken as Fals Borda (2000) suggests. The study reached a commitment with the social actors to improve their diving performances. Therefore, once the initial exploration was done, the study was conducted from the emic perspective, turning it into a participative ethnographic research. As result, the research continued with the identification of key informants and stakeholders through the snowball technique thanks to this participation.

The diving industry, as any economic activity, works in a structure supported by several facilitators (table n.2).

Table n.2: The stakeholders of study

| Tourism industry |
| --- |
| Governmental departments |
| Scientific and research institutes |
| Social action groups |

The authorities are understood by the general public as holding prime responsibility for the common good as the study of McKinley & Fletcher (2010) reveals. However, the same study points out that the transparency and clarification of levels and scopes of responsibilities are the main barriers. On the other hand, the non-governmental organizations have significant experience as intermediaries, mediating between civil society and the authorities. Regarding tourism, the sustainability involves to include these organizations with diverse foci which contribute to the dialogue and strengthening of the system (Lucrezi et al, 2017). This recent study about the sustainability of the scuba diving industry highlights the variety of disciplines which implies the tourism activity. Therefore, the scientific bodies have been revealed as key players to consider in this holistic framework. The knowledge production including suitable business strategies and solutions for the current challenges assist the tourism industry for the true move forward. In conclusion, this network guarantees a collective voice and less top-down management for an activity with multiple-interest as tourism (Lucrezi et al., 2017).

The information obtained jointly through the observations, interviews and time together were used by way of feedback dynamic over the stage. This access to the information allowed the development of the description-explanatory stage. The core of the analysis was the diving performance from the Ocean Literacy perspective. All this scrutiny was the baseline for the jointly gained knowledge related to emotional - cognitive - normative domains inside the diving structure (Chapter 4). Additionally, the approach of the study meant to develop a structure, so, the network of stakeholders - mentioned above - was also deemed a significant cornerstone (Chapter 5).

The social actors of the study were analysed from this interpretative perspective: exploring the roles, responsibilities, information content and abilities. In response to this the spirit of the project was deliberately participative and these social actors were frequently consulted.

Finally, for the last research question, the objective was to show the potential benefit of the approach to diving centres, as part of the above mentioned mutually beneficial situation. To achieve this, the case study was restarted through the assessment of the interpretation approach in it. The interpretation discipline was 'rescued' as the central axis of the proposal, highlighting its strengths for the Ocean Literacy program in diving. In response, small interventions were fostered thanks to the close collaboration maintained with some members of staff. The managers of diving centre with some instructors/guides and some stakeholders (scientists) participated actively in the development of this knowledge.
For example, one centre developed a poster about the Posidonia oceanica meadows, which was shown in the facilities. Another centre organised scientific talks, and a third was actively interested in the Sea Watchers Programme (see the impacts of the study in the chapter 7). It is worth mentioning that one of the most important contributions of this study was to put in contact with one another actors who are working with the same philosophy but individually. As a result, the empathy for the approach increased. The value of the gained insights was shown to both the researcher and social actors. Consequently, the research was driven slowly 'through the action'. Hence, the theoretical model and toolkit was developed under the constructive approach (Chapter 6).

The final analysis meant to return to standard research with etic perspective as the academic work should be done by the researcher. In the academic milieu, the knowledge emerged collectively was analysed. As a result, the theorization of the ‘lived narrative’ was the foci and the challenge was to combine the conceptual with empirical understanding. For this, at the first instance, after redefining the framework of the research, a voluntary distance from the case study was decided, as a strategy to delimit objectively the reality that was lived and that was wanted to show in the study.
It is important to notice that the conditions where the studies are conducted are always dynamic and changing because of the sine qua non-nature of the interaction with that reality. This prerequisite prevents a unique "photograph" of the experience.

In light of this stage, the analysis of the gained knowledge required a second literature review and the consultation of experts. This contribution enriched the interdisciplinary that characterises the entire study. The area of the study; the fieldwork location and the analysis of the information gleaned required that type of consultation and confirmation (e.g.: the Heritage Interpretation Association (AIP in Spanish). Consequently, the outcomes of the field study were reinforced by the theoretical background.
Once this adjustment was finished, the writing of the thesis was conducted as the final product of the entire research study.

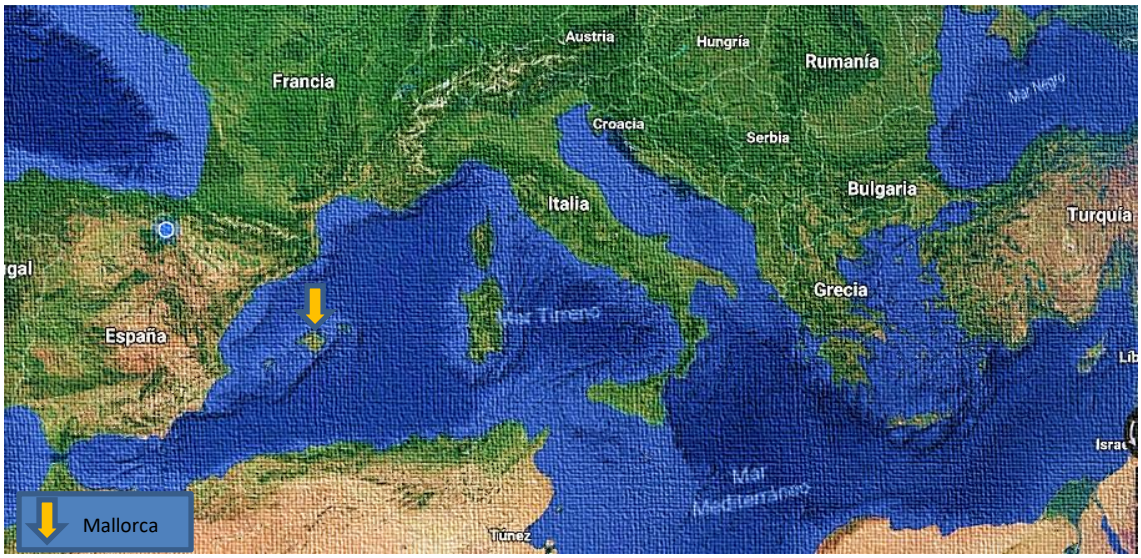
The following sections extend the information of the key elements of this research design. To begin, the case study is showed in detail to understand the choice - which is based on suitable features to enquiry the Ocean Literacy & citizenship in the recreational diving and its impact on the cascade of making-decision.

### *3.3.1 Mallorca, the case study*

The island of Mallorca gathered the critical factors to carry out this research study. The dimension matched with the limitations of a PhD. The Consell de Mallorca, the regional government, estimates the extension of the island in 3626 km2 (Consell de Mallorca, 2016). The variety of the market, diving centres, and diving spots offered the exploration of different elements. The entire proposal is developed under Western Culture (only one vision): clients; staff; and the local population. The project suggests mass tourism as a priority target for studies about Environmentally Responsible Behaviour. In this sense, Mallorca depicts a typical mass tourism destination in the Mediterranean region. In 2016 according to the official statistics (Ibestat, 2016), The Balearic Islands received 15,403,147 visits whose 10,932,632 had Mallorca as the main destination. Their diving market (confirmed by managers of diving centres) matches with the main tourist profile found in many other destinations. The major European markets are: German (38% of the entire visitation in 2016), British (21%), Spanish (11%) and French (4%) (IBESTAT: 2017). Located in the Mediterranean basin, Mallorca has always been linked to the destiny of these waters

(Figure n.13). Indeed, the marine environmental state of the Balearic waters is currently similar to the rest of Western Mediterranean Sea (Montes et al., 2012).

Figure n. 13: Mallorca in the Mediterranean basin




Source: Google maps

The Mediterranean Sea ('between lands') has always had an iconic role in the developing of civilisations. As the cradle of Western civilization, this Sea, now considered small, was seen immense in old times. Mare Nostrum ('Our Sea'), for the Roman civilization and its sprawl over the known world, as a basin has its own identity at the global scale, attracting their settlers (Ferrés Gurt, 2010). The Mediterranean Sea is one of the richest seas in the world in terms of biodiversity, with only of 0.7% of the world's ocean area and 0.32% of volume; it hosts 28% of endemic species (Blondel et al., 2010). Around 12,000 species inhabit in this inner sea (Briand, 2002) which represents roughly the 7.5% of the world's marine fauna and 18% of its marine flora (Bianchi & Morrib, 2000). However, this biodiversity is in clear degradation with a loss of 41% of its marine mammals and 34% of the total fish population over the past 50 years. The largest reductions happen in the Western Mediterranean Sea and the Adriatic Sea (- 50%) (EU, 2017). This situation is provoked by centuries of human activity. Bounded by over 20 countries, the coasts host the activities of 150 million residents (RAC-SPA, 2017a). In addition, these shorelines are under pressure of the arrival of 200 million tourists every year (RAC-SPA, 2017a), around the 30 per cent of global tourist arrivals (UNEP/MAP, 2016). As a result, the coast has been urbanised without control, causing the depletion of resources; the proliferation of introduced species; and all types of marine

pollution. These impacts explain the current threat stage in which the most sensitive and special habitats of this iconic sea are.

Consequently, the diving spots could facilitate interesting diving experiences but without iconic species (for example, sharks or seals). Sadly, the spectacular underwater context remains in few places over the world; therefore, the role of the staff becomes more important in the diver's satisfaction in those places where the sea shows clear evidences of overexploitation. In this situation, the good staff training gains greater relevance as the study promotes. All of these factors create a picture which can be 'validated ' in other contexts in the region, and consequently show some generalisations.

The fieldwork was developed during the summer season of 2016 over six months where the researcher was involved in the recreational diving activity into three diving centres. In practice, ethnography requires time with the social actors. Therefore, the researcher could not access to the entire diving industry of Mallorca, whose industry is formed by approximately 30 diving centres (according to Spanish Diving Centre Association – FNCB, 2015). As a consequence, it was resolved that three of them would be selected as the sample of the study because they can adequately represent the industry in Mallorca.

#### 3.3.1.1 The gate keeper

The access to the diving community was agreed in principle thanks to Ondine Association. As partner of this study, this non-governmental organization had the goal of *'promoting the environmental, financial, and health benefits of marine conservation in our/the community'* (Ondine, 2017). Consequently, the philosophy of Ondine Association fitted in the stream of the Ocean Literacy and the purpose of Ocean citizenship, and had shared goals to the research (Figure n.14). As a well-known gate-keeper of the eco-friendly diving network in Mallorca, its introduction of the researcher to key stakeholders was a fundamental and essential contribution.

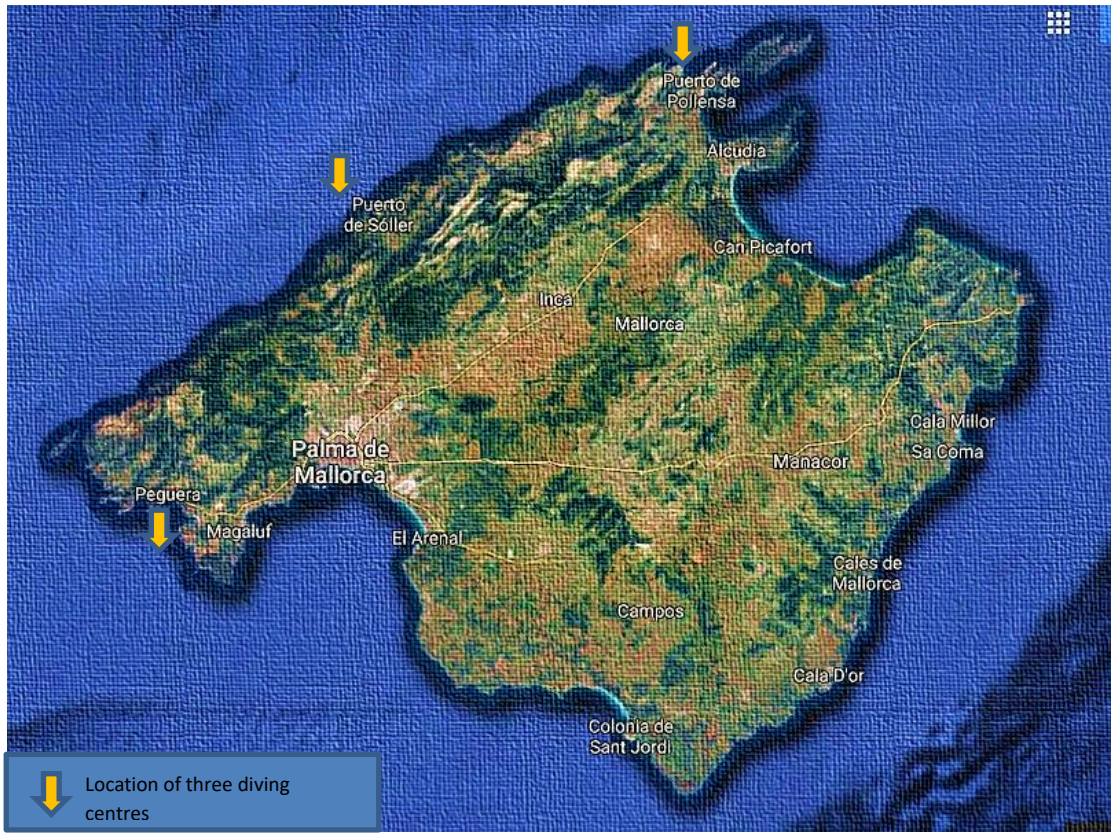

Figure n. 124: Shared time with the gate-keeper of the study, - Ondine – in the cleaning up in the marine reserve of El Toro Mallorca, 2016.

Accordingly, the outcome of the contact's period was a collaboration agreement that was reached between these three diving centres and the researcher. As a consequence, the ethnographic project was designed to work with the three diving centres. The participation of all these three diving businesses and other key players was crucial for the entire research.

### 3.3.1.2 The diving centres of the study

The main requirements to be selected were a wide geographical distribution; the different volume of divers; diverse client profile; and diving in some protected area. The diving centres operated in North East; West; and South West coast (Fig.n.15).

Figure n. 15: Distribution of the three diving centres of the study




Source: Google maps

The firms involved in this activity are considered micro according to SME (small and medium-sized enterprises) defined by EU recommendation 2003/361, operating with less than ten employees and earning less than two million Euros per annum in turnover. The same categorization is used by several authors to define business owned locally which are run on a small scale (Shaw, 2004; Mustika et al., 2012). The small-to-medium sized wildlife-tourism enterprises (SMWTEs) were also described by Higginbottom (2004), who emphasised some common factors for wildlife tourism businesses. These three diving centres - although being micro businesses - operate with very different volumes of divers (Table n. 3). Two of them handled a similar number of divers in the last season (T: 2380 divers; P: 2300 divers) However, the location and the ownership impact on their scope in the insular market: one diving centre was under German ownership but in a traditional British location which meant that its main clientele was composed by German and British divers (37%, 33% respectively). Another had a strong position in the island market, so, it could afford to launch special offers for locals (domestic: 30%) and to cover the German tourists (30 %), the main target in Mallorca. The third one - the smallest scale (S: 1000 divers approx.) - is located in the

traditional port for French tourists (51%). Therefore, this nationality was covered by that centre. At the same time, one of them operated in one of the most successful marine reserves. This selection also avoided the bias of gained knowledge related to a specific diving experience associated with the only particular diving centre.

Table n.3: Description of the three diving centres involved in the study

| | **Diving centres** | | |
|---|---|---|---|
| | **S** [(1)] | **M** [(2)] | **P** [(3)] |
| | ***Characteristic*** | | |
| *Year of foundation* | 2012 | 2011 | 2005 |
| *Business Philosophy* | *The new center is based on a very simple philosophy, making able to bring you to the dive world and sharing with you this amazing feeling about the ocean we have.* | *Centre is a happy place where you can breathe passion for the sea and professionalism, all in a family atmosphere* | No info |
| *Type of business SME category ( EU)* | Micro | Micro | Micro |
| *Staff* | 1 fulltime skipper<br>2 ful time instructors<br>2 fulltime trainees to become dive masters<br>1 manager/instructor | 2 fulltime skippers<br>5 fulltime instructors (+ 1 freelance)<br>1 ful time dive master<br>4 fulltime trainees to become dive masters<br>1 coordinator<br>1 secretary<br>1 owner/ manager/instructor/skypper | 1 full time skipper<br>4 full time instructors<br>2 full time trainees to become dive masters<br>1 manager/instructor/skipper<br>1 owner/instructor |
| *Number of boats* | 1 | 2 | 2 |
| *Type of boats and Carry capacity (number of pax.)*[1] | Rigid inflatable boat - 8.5 m length - Capacity for 12 pax. (8 divers) | 2 Rigid inflatable<br>Capacity for 12 divers | Rigid boat - 10,5 meters length - Capacity for 12 diver + skipper. divers.<br>Rigid inflatable boat-7.5 meters length – Capacity for 12 divers. (max. 8 diving tourists) |
| *Diving offer* | Dive<br>Snorkelling<br>Technical Diving<br>Cave trips<br>Sunsent trips<br>Sa Fourada | Cerfied divers<br>Diving courses<br>Snorkelling<br>Technical Diving<br>Technical Nitrox Diver<br>Trimix Diver<br>Freediving Course | Freeding<br>Cerfied divers<br>Try Scuba diving<br>Snorkelling<br>Technical Diving |
| *Length of dive trip*[2] | A double dive every morning from 9am to 13 pm<br>A single dive on the afternoon at 14-16 pm or 16-18 pm. (*) | Certified diving in the morning: 2 shifts<br>Baptism and Snorkelling in the afternoons | Double tank dive: from 8.15 am to 13.30 pm (45 minutes each).<br>Try diving: every afternoon at 13,45 or at 15,45. |

[1] The carry capacity of the boat is determined by the security protocols: stability test

[2] The morning was reserved for the diving certified while the afternoons were managed for the baptism, and snorkels that need more time.

| | | | |
|---|---|---|---|
| *Diving courses*[3] | PADI Discover Scuba Diver (DSD)<br>PADI Scuba Diver<br>PADI Open Water Diver<br>PADI Advanced Open Water Diver | Discover Scuba Dive<br>Open Water Diver<br>Advanced Open Water Diver<br>Enriched Air Diver<br>Emergency First Response<br>Rescue Diver<br>Dive Master | SSI Scuba Diver Course<br>SSI Open Water Diver Course<br>Advance Adventurer<br>Specialty Courses |
| *Diving spots* | **Seascape**<br><br>Diving spots along the Serra de Tramuntana. | **Biodiversity**<br><br>Marine reserve of El Toro | **Seascape**<br>With a range of more than 30 different dive sites accessible by either boat or shore, in the beautiful bays of Puerto Pollenca and Alcudia. |
| | ***Clients***[4] | | |
| *Number of divers (approx.): 'walk in' and frequents* | 757 divers registered (over 1000 divers) | 2380 divers | 2300 divers |
| *Nationalities* | Domestic[5]: 15 % (45% locals vs. 55% nationals)(^)<br>German: 25 %<br>British + Nordics: 9 %<br>French: 51% | Domestic: 30%<br>German: 30%<br>British: 20%<br>French: 10%<br>Others: 10% | Domestic: 5%<br>German: 37%<br>British: 33%<br>French: 10 %<br>Others: 15% |
| *Type of party according to observation and personal comments of owners* | Individual: 40%<br>Couples: 25%<br>Group of friends: 15%<br>Families: 20 % | Individual: 50%<br>Couples: 40%<br>Group of friends: 5%<br>Families: 5% | Individual: 50%<br>Couples: 20%<br>Group of friends: 10%<br>Families: 20 % |
| | | | |

The information about the S and P diving centres were confirmed by the managers through a Skype meetings on 27th March 2017 and 24th April 2017 respectably. The M information was confirmed via email on 17th May 2017.

To sum up, Mallorca symbolises the ever developing diving destinations where the marine ecosystem has been deteriorated. And as result, a new gaze is demanded (The Ocean Literacy) in order to understand other beauty such as the tiny living being world (for example, nudibranch) that Mallorca hosts.

The next element is the base of the entire research: the researching questions. Whilst they are usually outlined in the theoretical phases, the final version is polished by the context.

[3] Non included diving offers not to suitable for touristic demand such as technical diving courses (Rescue Diver) or for under eighteen (e.g.: Padi bubblemaker)

[4] Nomenclature from the diving centres to refer to the divers.

[5] According to the manager, the national tourism increased around 20-30% in comparison to the previous year.

Therefore, the following section introduces these researching guidelines, once the (literature) exploration of Mallorca impacted on them.

### 3.3.2 Main objective and key questions

The overall aim of the research study is to determine the potential of the Ocean Literacy in the underwater marine ecotourism, so as to increase citizens' empathy about the marine environment. How can underwater marine ecotourism contribute towards the place-based marine environmental awareness through the Ocean Literacy?

To reach this aim, the study was designed to answer the following questions:

- How is the Ocean Literacy evidenced in underwater marine ecotourism at present? Identify the factors (characteristics and grade of implementation) which draw the literacy approach in the activity.
- What is the tourism stakeholder framework for developing an effective Ocean Literacy strategy? Describe the scenario where the Ocean Literacy operates within the marine underwater ecotourism and which one could be the suitable as a contributor to ocean citizenship (priorities, strategies and roles).
- How should an underwater marine ecotourism product develop the Ocean Literacy approach? Characterise the design through the use of facilities; the structure of the performance; roles and responsibilities of the staff.

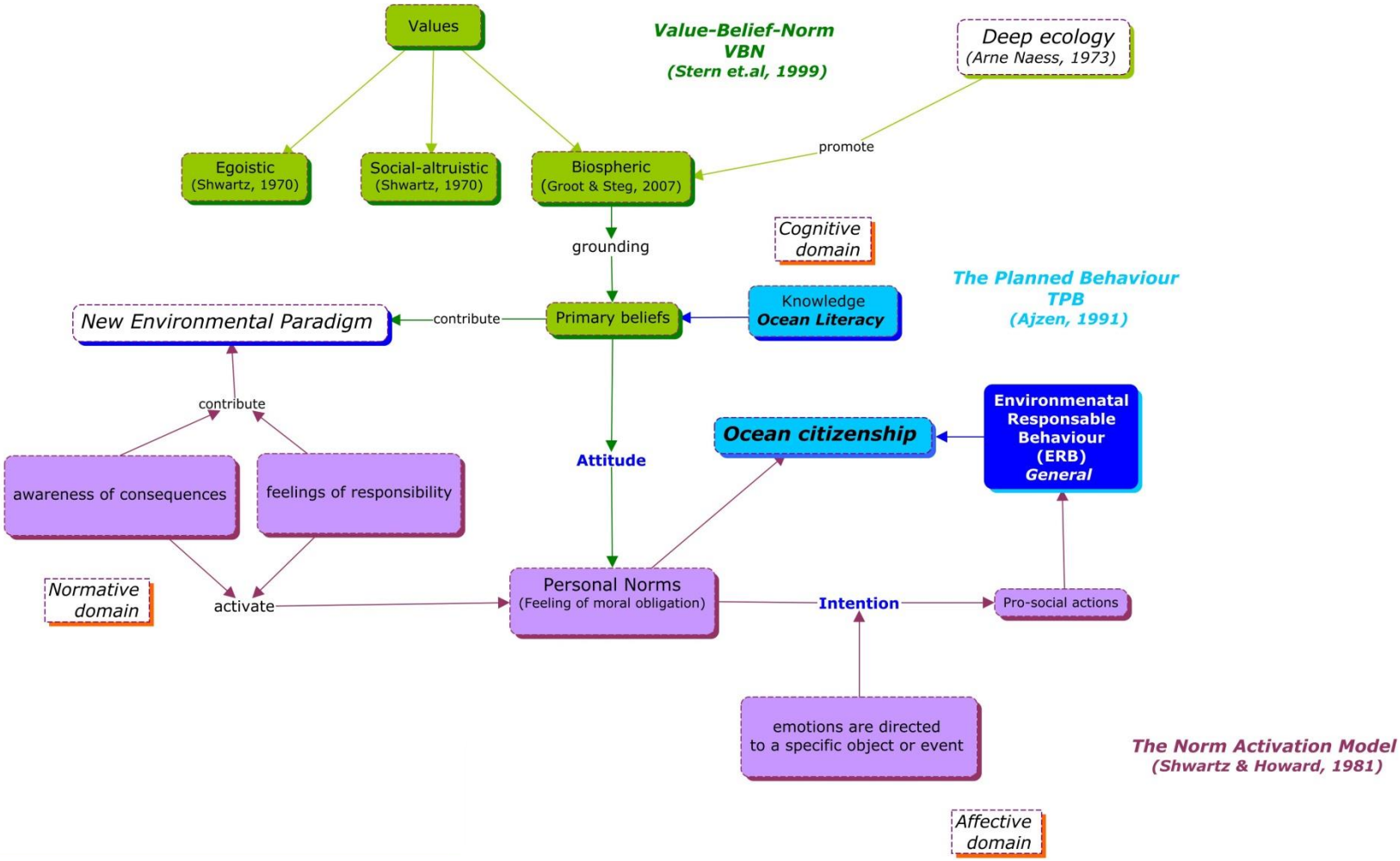
These guidelines take to the research techniques to obtain the answers to draw the case study.

### 3.3.3 Research techniques

The enquiry about the relationship between human society and the ocean can summarise the central core of the research: identifying, understanding and interpreting how the target culture (Western culture) lives alongside the Mediterranean Sea. The perspective chosen was the understanding of divers in order to define the current the Ocean Literacy of this iconic sea, the cradle of Western culture.

Notions such as place meaning, place attachment and environmentally responsible behaviour (ERB) were explored in response to this question. In general, the theories of the behaviour were taken as the ground to approach this topic, from the premise that the information is the driver of the behaviour. The research was driven to identify the emotional, cognitive and normative levels as the principal spheres involved in the behaviour (see Figure. n.16)

Figure n. 16: Behaviour changes theories based on the three domains



The affective domain is directly related to the previous intention of any behaviour. For this reason, according to the Norm-Activation Model (Schwartz & Howard, 1981), the feelings about the specific object or event require understanding. In light of this, place attachment was explored through the notions of place identity, place dependence, affective attachment, and social bonding (Kyle et al., 2004). On the other hand, the cognitive domain contributes to the primary beliefs that feed the attitudes (The Planned Behaviour, Ajzen, 1991). The attitudes generate the personal norms, previous phase for the intentions (to act). Consequently, in this sphere, the clarification of misunderstandings and/or the creation of new knowledge related to the object can generate a change in the behaviour. For this reason, this qualitative investigation was also addressed to inquire about the persistence and the likely outcomes of their belief. The theoretical Model Recreation Experience (Ballantyne et al., 2011) suggests that the personal evaluations by visitors have a key role in the path to break the old beliefs (see the Figure. n. 10). And ultimately, the normative domain was presented to understand the awareness of consequences and feelings of the responsibility (Schwartz & Howard, 1981) in order to build the personal norms. Social perception and the control factors for the performance of behaviour are aspects to consider for the study with visitors.

A recognised strategy to identify the salient beliefs underlying the behavioural decisions is the interview (Curtis et al., 2010). This technique, based on open questions, offers the specific terminology by which the users develop these beliefs. It meant that the categories of the analysis came from the respondents' answers rather than being assigned a priori by the researcher. However, other factors can influence the Environmentally Responsible Behaviour (ERB) such as psychological factors (place attachment: Lee 2011; recreation experience: Ballantyne et al. 2011a, b; commitment: Lee 2011); personal factors (self-efficacy: Tabernero & Hernandez 2011); and external factors (availability of physical infrastructure: Vining & Ebreo 1992; cultural factors: Milfont et al., 2006). As a result, more elements are considered to understand the development of a marine awareness or empathy (further Ocean citizenship). For that reason, in parallel, the diving trip was analysed through participant and structured observation, and the context was built with the contribution of the stakeholders' network. As said before, the documents reviewing was a support of knowledge development as well.

All the techniques were implemented simultaneously in order to gain appropriate information to answer the research question: *How can underwater marine ecotourism contribute towards the place-based marine environmental awareness through the Ocean Literacy?* For it, the first objective was to explore the situation related to the Ocean Literacy and diving activity in Mallorca (exploratory phase) and after that, finding the reasons which could explain that situation (descripto-explanatory phase).

#### 3.3.3.1 Observation

The main technique of any ethnography is the ability to observe social settings and their activities. Structured observation and participant observation during the field work with divers and staff, in the diving centre facilities and on the diving trips, were implemented as a continuum.

Participant observation was used during the period which the researcher was seeking to understand the scenario of the study. The purpose here was to understand the context (Bogden & Biklen, 2007) and the symbolic world (Delbridge & Kirkpatrick, 1994) where the diving activity operated. The participant observation was the research tool in order to test the crew performance related to the study approach. Simultaneously, this strategy is considered to conduct unobtrusive behavioural observations. Participant observation was used as a technique to assess environmental attitudes, biospheric values, and ERB to allow a comparison of how divers and staff statements in the interviews relate to their actual practice (Lee et al., 2015). In other words, it is a supportive technique to characterize the coherence of the social actors' narrative.

The participant observation means a frequent interaction with the social actors. Therefore, the knowledge-building is fostered through that social interaction and the joint reflexive analysis (Angrosino, 2005). As the researcher was introduced by the staff & crew of the diving centre and identified (with the University logo) during the most of time of the process, the role was of participant as observer on the diving trips and observer as participant (categories established by Gill & Johnson, 2002) in the facilities of each diving centre, witnessing the diving activity. In the diving trips, despite the researcher adopted a role of observer, she was part of the dynamic. Conversely, on land, the researcher kept

away from the scene of the action. This latter technique allows an analytic-reflective perspective in situ which can enrich significantly the research process (Robson, 2002). The postmodern critiques of objectivity promote these reflective observations (Angrosino, 2005) which are recorded through the characteristics of the researcher, including age, race/ethnicity, gender, institutional affiliation, individual temperament, etc. (Biklen & Bogden, 2007). Likewise, these methods were used to gain the trust of the group.

The participant observation followed an observation template (appendix 7). Therefore it was conducted as a structured observation during the various diving trips of the three diving centres. The structured observation was used for validating some information provided by the staff, and by some divers about the Ocean Literacy in the entire diving experience. To achieve this aim, the diving trip (briefing - trip - debriefing) was assessed as the facilitator.

The observation process considered the independent variables related to the tourism performance such as different diving activity; profile of crews; specificity of the dive spots, daily times and type of boats in each observation of diving experience (front page of the observation template). The strategy was to cover all of these variables to test the role of the Ocean Literacy within the structure of each diving centre.

The diving trip was dissected through a S.W.O.T framework (strengths, weaknesses opportunities, and threats). The organisation and structure of the trip ('O' of TORE); and the design of the tourism experience (messages included) were starting step to test the diving offer. Subsequently, the interaction of the crew with the marine ecosystem and the tourists were the foci of the study. The relevant information and knowledge provided to tourists; and their reactions, questions and answers were part of the inquiry. The diver's interview was designed to include the observation of habit related to the information seeking during the diving experience. Later, it was checked with the crew about the type of questions done by the diver. It let that the interesting facts or information for tourists were identified ('R' of TORE).

These steps were addressed towards to include the diver's satisfaction in the enquiry. As a way to guarantee it, the techniques and skills were deemed for making the experience enjoyable ('E' of TORE), accessible, thematic ('T' of TORE) and relevant ('R' of TORE). This task was also supported by some questions during the interview to the staff and divers.

To achieve this aim, the researcher reached an agreement with each crew about the least disturbing place to observe from during the diving performance on board and in the facilities on land. Therefore, although the researcher was identified by staff members, the frequency and the chosen place out of the 'main scenario' allowed a reduction in the 'observer effect' with minimal interaction and habituation (Robson, 2002). It is important to clarify that the diving best practices were not taken part in the observable objectives. Despite the instructor being deemed as the reference point for best practice for novice divers, the behavioural outcomes of the project are more related to the daily routine in the homes of the individual participants. The expertise of the divers related to their impact on the marine ecosystem is widely studied. As an example, this research study coincided with a project named Wildsea Divers which belongs in Wildsea Europe. Paraphrasing its website, it promotes sustainable tourism in coastal destinations through respectful experiences with the marine wildlife. Regarding diving, the tourism businesses may join Wildsea Divers. In Mallorca, one of the involved diving centres in the island confirmed that the operational factor was the main assessing area, further the spread of marine reserve category in the diving performance. On contrary, this present research has as an objective to observe if the information provided in the diving experience could be the trigger for environmental aware mindset. Therefore, the diver performance underwater (operational factor) was not tested.

#### 3.3.3.2 Interviews

The interviews were used as complementary technique of the ethnography. Interviews are common as a knowledge gathering technique in social science, particularly when the research pursues a descriptive and/or explanatory process. The narrative is the core of the technique, how the polled person explains the subject/object of study and its connections are the key of the process. Consequently the design of the interview must be considered as a key factor due to 'its potential impact over the quantity and quality of gained data' (Saunders et al., 2009).

Among different types of interviews, the semi-structured and unstructured (casual and in-depth) interviews are considered 'non-standardised' and labelled as 'qualitative research interviews' (King, 2004). 'Non-standardised' interviews allow respondents to explain and build their answers, enriching the enquiry. Particularly, in interpretivist epistemology, the

meanings given by the social actors to events or phenomena are the way to bring significance and depth into the knowledge gathered. This process happens on both sides (interviewee and interviewer), provoking new thoughts for the interviewer. At the same time, depending on the interviewee, these interviews can be referred to as 'informant interview' when interviewee's knowledge guides the dialogue; or called 'participant (or respondent) interview' when the researcher takes over (Easterby - Smith et al., 2008; Ghauri & Grønhaug, 2005; Robson, 2002).

In exploratory studies, both types of interviews are frequently used to explore answers in order to seek new insights (Healey & Rawlinson, 1994:130), while in descriptive studies they can be adopted to identify general patterns. All of these outcomes are due to the fact that the interviews are the inherently relational in nature (Fontana & Frey, 2005). In this sense, **semi-structured interviews** also contribute to the understanding of the relationship between the categories or factors which have been identified in the description phase (Saunders et al., 2009).

Following this approach, this study structured the work with the social actors through unstructured informant interviews with key players such as managers of diving centres or stakeholders. The objective is to conduct them more like flowing conversations in order to elicit 'stories'/narratives' (Seidman, 2006). Regarding the diving staff and divers, the interviews were semi-structured mainly, based on a combination of questions related to the emotional, cognitive and normative domain. In addition, **unstructured interviews** (casual conversations) were present along the ethnography with all research actors as the primary base of communication. The conversational style marked the tone of all types of interviews. 'Let's talk' was the starting point.

The interviews were designed to understand the dependent variables of ocean knowledge and marine responsible behaviour in relationship with independents such as sociodemographic features; motivations and psychological characteristics; and emotional attachment. This previous categorization had as its main objective to find patterns or profiles related to the ocean awareness among interviewees.

The first draft of the tourist interview covered the pre-trip and post–trip, to evaluate the potential change generated by the diving experience, meanwhile the crew's interview kept

the same comparative purpose between pre and post season to evaluate changes of diving dynamic (table n.4).

Table n.4: The structural design of tourist and crew interviews

| | Tourists | Crew |
|---|---|---|
| | **Pre-dive interview (a)** | **Pre-season interview (a)** |
| **Section 1** | About the tourist to identify the ocean connection through the socio demographic characteristics. | About the crew member, where the sociodemographic characteristics of the interviewee are defined. |
| **Section 2** | Diving experience where the motivations, expectations and psychological characteristics were explored. | Diving job to identify their professional background scenario; to explore the motivations and psychological characteristics; and to understand the interactions with tourist during the diving experience. |
| **Section 3** | Environmental concern with the objective to understand the eco-friendly implication of the tourist as part of the normative domain. | Environmental concern where the behaviours showed as part of the normative domain. |
| **Section 4** | Relationship with the Ocean through the personal meaning of the marine realm to complete the emotional domain (which was already inquired during the section 1 and 2). | Relationship with the Ocean to reflect the emotional domain with the object of their job and this study (the nature environment where the tourism activity is carried out). |
| **Section 5** | The Ocean Literacy as a way to evaluate the level of the previous cognitive domain. | The Ocean Literacy as the example of the cognitive domain which their job should be required. At the same time, the communicational techniques such as interpretation were assessed. |

| | Post-dive interview (b) | Post-season interview (b) |
|---|---|---|
| **Section 1** | Connecting through senses, as a path to define the emotional link with the marine realm generated through the experience. | Exploration of the senses involved in the diving to show the emotional domain. The changes related to the quality of marine ecosystem or meaning of the Ocean during the season as well as the course of the own season are the opinions and perceptions consulted. |
| **Section 2** | Knowledge Explorers as a way to evaluate the cognitive benefit obtained. | The main focus was the information provided during the diving experience, as cognitive domain. The elements assessed were: the interesting information for the divers; the misunderstandings or stereotypes clarified about the Ocean Literacy or the exchange of knowledge between the instructor/master diver and the tourist. |
| **Section 3** | Citizen Science as a global concept to check the Ocean's pro-active attitude of the tourist after the experience. | Their opinions about better practices to implement to improve the activity and the health of the Ocean. |
| | **Appendix 4** | **Appendix 2** |

Most of them were designed as open questions which allowed deeper, personal information and as result less standard responses from the interviewee. Consequently, the profile of the underwater activity in Mallorca could be outlined. To achieve this aim, the interviews were designed following the categories of Maxwell (2005): meaning questions (or how people make sense of the world); questions that describe the context; and questions that inquire about the processes. This classification is supported by Marshall & Rossman (2006) who divide the qualitative research questions into:

- descriptive questions: *Where are you from? Where do you normally live?*
- explanatory questions: *How did you decide to become a diver?*
- emancipatory question, those which promotion the participation in the social action around a phenomenon: *what is your environmental behaviour during your daily routine at home?*

There was an exception with the staff interview where a scale question was used as a prompt to encourage debate about environmental issues. The staff member was invited to choose five statements from the NEP Scale and to give the reasons for that choice. The relevance of this scale in the study is explained in the design of the interview. There was not any intention to generate a scale of knowledge. As a semi-structured approach, this strategy was only to be used as a guideline. With this type of target, it is helpful to use 'aids' to talk about complex topics. In this way, conversations flowed to the required direction for the research, without following them strictly.

Simultaneously, the conduct of interviews means to manage key factors which are intrinsically interwoven: the relationship with interviewees; the context which can define the answers given (Fontana & Frey, 2005); and how to ask and make follow-up questions (Seidman, 2006); are central elements to manage. A clear example of this situation is the following discussion about the particular characteristics of these interviews. The interviews of this study were designed to be a simultaneously reflective process for respondents. The interviewees can start to think about the topic due to the fact that they have the opportunity to hear themselves ‘thinking aloud’. As a result, the research gains in terms of quality of information. However, for the same reason, impact of the questions on the respondents' answers must be also considered (Silverman, 2007). The perceptions about the

interviewer or topic can draw a response of 'socially desirable' content such as ocean protection. At the same time, the researcher took her mind-set into consideration in interpreting the interview atmosphere and conducting the interviewee. In other words, this interactive milieu during the interview should be considered in order to control both the bias and get quality information. In this sense, the validation requirement was very present during the pilot project.

Each question and the entire guideline of interviews were backed by the theory (appendices 2 for the crew and 4 for tourists) to ensure quality and relevance. Due to the nature of the interviews, content validity was applied partially. For example, double check questions were considered during the design of the researching tools in order to contribute to the validation of findings. However, the interviewee usually has more freedom to build up the storyline in the semi-structured and unstructured interview. As a result, it could not be adhered to the procedure in all of the occasions. Despite it, the researcher always kept in her mind the coherence of the findings. It means that, for example, if they considered themselves as eco-friendly people, the question about responsible environmental behaviour was taken as corroboration (n. 20 and n. 21 of appendix 5). In this way, the thematic validation was done through the cognitive and normative domain related to the self-perception as an eco-friendly person. It is expected that an eco-friendly person has at least a basic knowledge about a key ecosystem like Ocean and their behaviour corroborates this. This type of consistency was sought over the interview. In addition, the reflective nature of the interview allowed the display of these potential incoherencies. Once identified, they were commented and re-integrated into the dialogue as a way to move together towards the topic, and followed a constructivist approach where the interviewer/interviewee/topic formed a tandem.

Regarding the adequate size of the sample for this study, the extrapolation of insights is the clue. When the project has been carried out in a case study, generalisation is questioned as Yin (2003) points out. However, this study assumed the challenge of generalisation, making research decisions in this direction. The size of the sample usually is a cornerstone. In this sense, usually, the more access to the activity and their users provide, the more consistent data can be gained. Similarly, the saturation level related to the content is the best strategy to define the sample during the data collection (Cong et al., 2014). In this sense, Ajzen &

Fishbein (1980) highlight that the theoretical saturation about the elicitation of beliefs could be reached in a small sample of the population, provided that the information gathering is done in the context studied and during the timeframe of the project (with socio demographic profiles included).

#### 3.3.3.3 Research Journal

The keeping of a research diary is the centre of any ethnography therefore it was a significant technique during the entire field work of this study. The field journal collects observations and reflections on experiences during the research in order to keep an accurate record and encouraging reflexivity in the entire process. As Delbridge & Kirkpatrick (1994) categorize, this qualitative method allowed the recording of:

- primary observations related to the diving activity from diving centre facilities and on the diving boat;
- secondary observations based on semi-structured interviews;
- interviews with the divers who decided to take part in the research during the boat trips, as well as with the crew of these diving boats; and
- the experimental observations were fuelled by the perception, feelings and interpretation of the researcher during the interaction with the diving activity.

Its chronological format was crucial to the development of the 'story line' of the project during the analysis process, as advised by Riley (1996).

To conduct this knowledge gathering, the researcher had to get the balance between the interaction with the case study and its collection in the research journals. Taking into account the daily rhythm of the diving activity, the writing down of field notes was a challenge. Sometimes after the interaction (trip, interview or observation), and sometimes during the dead times of diving experience, the researcher tried not to conduct that task in front of the study's actors. Although the ethnography was overt, the researcher must not be seen as an observer who takes notes for the better integration in the activity (habituation).

In addition, a photographic diary was kept to reinforce the daily routine (Emerson, et.al, 2011) during the field work such as the diving activities; the interactions with clients; and the pertinence of their facilities for the Ocean Literacy. In this way, some perceptions and

findings could be recorded visually. This material also permitted the registering of 'mundane elements' which usually help to understand the context such as the design of the harbour or the tourism flow on it. These were incorporated into the analysis of the information acquired by other main strategies in order to support the connection between discursive categories and behaviour categories.

#### 3.3.3.4 Critical literature review

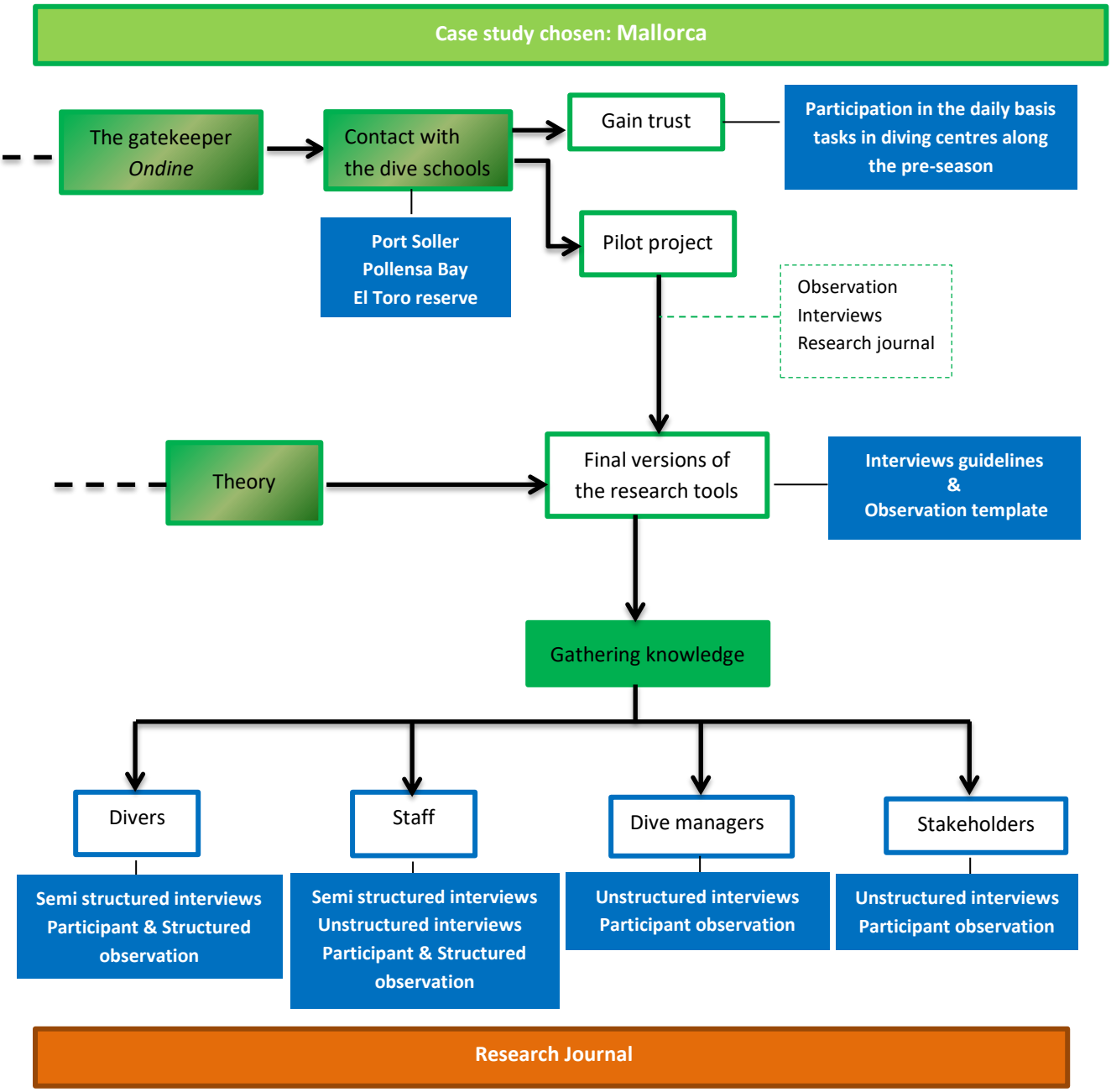
Considering the transformative strategy of the Ocean Literacy approach, the study demanded a critical review of the published information resources on marine knowledge. This process was carried out at different levels. First of all, the academic literature highlighted the fact that the Ocean Literacy in diving activity is still an unfamiliar topic. While it is true that there is wide academic production about heritage interpretation, a change in the diving industry through the implementation of marine interpretation has not been studied in depth. Despite this, once the information was collected, academic references were used for theoretically validating the categories of study and to extend the existing theory. However, as the ethnographic approach seeks to know the way in which people interpret social structures in order to develop common activities (De Schutter, 1983), the institutional and regional contextualization of the object of study was deemed critical.

As a consequence, the next approach was focused on the grey literature. In this case, the institutional reports reflected the current situation of the diving activity within the governmental strategy. Here the purpose was to understand the management, business operation, limitations and access to information of diving centres. At the same time, this exploration was extended to the island milieu to understand the development of some institutional interactions. The scuba diving activity cannot operate in a sustainable way without the support of key players recently highlighted by scholars (Hillmer-Pegram, 2014; Dimmock & Musa, 2015; Lucrezi et.al, 2017). Considering that the Ocean Literacy was born in the education field, learning material was another of the sources of information.

### 3.3.4 Field work – Growth in knowledge

The gathering of knowledge is shown in detail below in the figure n.17

Figure n.17: The route of the fieldwork




This figure summarises the research process conducted during the fieldwork in Mallorca. Once the contact with the three diving centres was formalized, the time in their facilities was priority to active the cascade of actions which address to answer the research questions. That cascade was defined by,

- The development of trust among researcher and diving staff. Sharing the daily tasks during the shoulder season was the technique to get this aim.
- The pilot project to adapt the research tools to the context. The tools; protocols for collecting data; and the performance of the researcher were tested during the shoulder season.
- The final versions of the research tools opened the extended collection of knowledge.

The following sections explain in detail these actions conducted for knowledge development.

#### 3.3.4.1 Time horizon: the stages of research

Research projects where the prime objective is the development of reflective knowledge requires spending quality time with the subject/object of study. Furthermore, when the subject/object of study is a particular contemporary phenomenon within its real-life setting, the case study is suitable (Robson, 2002). Due to the fact that the characteristics of the context usually define the required time to achieve the research aim. Consequently, the time horizon of the study took it into consideration, conducting ethnography for the diving season of 2016 in Mallorca. It meant a constant gathering of information of six months, a period that also contributed the reduction of potential biases. This span of fieldwork serves a strategy which has an objective to cover different tourism flows in order not to be affected by socio-demographic characteristic (for example, nationalities) associated with a specific time of year.

This continuum process and the availability of all of the social actors and the dynamic of tourism that season determined the number, exact times and frequency of every data collection stage. Visits to the three diving centres were regular during the entire period. The time in the working environment at diving centres was crucial to gain the trust among crew and to understand the relationship of factors involved in the learning experience (peak or shoulder month; centre's philosophy; instructor performance and profile of the tourists. In this sense, the time, which was spent with the staff in the diving centres, facilitated the comprehension of the logistic conditions, training and emotional labour of the experience.

To achieve this aim, the timespan in Mallorca was structured in three stages (Table n.5).

Table 5: Chronogram for the field work in Mallorca

| | Months | | | | | |
|---|---|---|---|---|---|---|
| **Activities** | **April** | **May** | **June** | **July** | **August** | **Sept.** |
| ***Stage 1: diving centres*** | | | | | | |
| **1.1 Target: crew** | x | x | x | | | |
| **1.2 Target: diving trip** | | x | x | X | | |
| ***Stage 2: tourism*** | | | | | | |
| **2.2 Target: visitors** | | | x | X | X | |
| ***Stage 3: context*** | | | | | | |
| **3.1 Target: stakeholders** | | | | | X | x |
| **3.2 Target: crew** | | | | X | X | x |

## I. The first stage

The first step was focused on diving centres in order to explore the relationship between their staff and their diving waters (The Mediterranean and Ocean in general). The guides are the principal facilitators of the tourism experience. Therefore, this information is one of the key factors to understand the level of implementation of the Ocean Literacy and its potential to build the blue society. Consequently, undertaking research with the crew was the first objective during the pre-season.

The staff of the three diving centres took part in the study as professional representative of the diving industry. In this case, the distinction between permanent and temporary worker was pursued as well. Understanding of background about the diving area; diving performance; 'local vs. non local' diver behaviours; and ability to draw patterns are dramatically connected with the number of the diving seasons worked in Mallorca.

## II. The second stage

It was the time to be concentrated on the visitors. This part of the fieldwork explored the relationship between the divers and the waters of Mallorca, the Mediterranean, and Ocean in general. Both stages shared the same purposes, therefore, the same methods as well. The knowledge gathering was mainly conducted in the diving centre's facilities.

The project involved divers who take part in diving trips or courses as main group. The selection of the divers to be interviewed was conducted through purposive sampling (as judgmental, selective or subjective sampling). The study adopted non-probability sampling,

where the units that are investigated are based on the judgement of the researcher. The selection was carried out to achieve a representative sample taking into account the balance between local vs non-local; nationalities; gender; type of experience; and between certified divers vs. learning divers. All of the divers involved in the study were over eighteen years old because of operational and ethical decisions of the research. The questions were related to emotional, cognitive and normative domains, therefore, certain maturity was required to provide thoughtful answers. The common profile consisted of primarily divers from Western cultures, mostly Spanish, German, British and French visitors. At the same time, the distinction between local and non-local divers (regardless of nationalities) was considered as well in order to identify tourism dynamics within current diving activity.

### III. The third stage

The last approach was to the network of stakeholders for the completion of future implementation of the Ocean Literacy in diving activity. The central purpose was to identify the working framework where the Ocean Literacy can operate well. To achieve the aim, the priorities, strategies, roles, functions, and relationships of each stakeholder were identified. The competencies, responsibilities, and the channels of communication were part of the same inquiry. At the same time, the gained insights from the previous stages were validated and prioritised by specialists or people in charge.

The selection of the stakeholders was based on the findings emerging from staff and diver interviewing phase (stage 1 and 2). At the same time, additional informants were identified through a snowball technique where the interviewer asked the initial informants (staff and first stakeholders) to suggest others who met the criteria. The social actors were the vehicle to this design. Diving professional associations; international diving certifiers; marine research institutions; universities; outreach organizations; governmental departments at different levels; and experts related to the Ocean Literacy were all involved. The unstructured interview in depth was the principal research tool.

The online specific enquires and the review of key documents was also part of the enquiring process.

### 3.3.4.2 Pilot Project

The principal objective of any pilot project is to test the research tools in small target samples to guarantee that the design of them is suitable for the research purposes. In this case, the trial phase was carried out between May and June of 2016. Officially, the season had already started; however, the main volume of tourist-divers did not arrive until later July. As a consequence, the trial period with the staff target had to be covered through the available staff members of only two of diving centres. This selection did not mean any significant bias due to the diversity of staff profiles comprised at this test stage. Regarding the tourism target, the preliminary project had to be extended in the time to involve the all three diving centres of the study. In this way, the compilation of representative results was certified.

**I. Staff interview**

The pilot project was focused on one diving centre and with the contribution of the three permanent instructors of another diving centre.

There were carried out semi-structured interviews to five instructors, one skipper and two trainees (students of dive master certificate). The guideline of the interview can found in the appendix 2.

These interviews were done in May before the tourist season started. The average length of the interviews was around 1 hour. All of them were conducted in Spanish, although one of the instructors was French. The interview was formed by two parts: pre-season and post-season. For timeline reasons, the aim of the pilot project was only to test the pre–season.

The structural factors were consulted to final approval by the interviewees such as the length of the interviews that was accepted. The general perception was that the interview was not too long as it was carried out as a conversation, and because of this approach, the conversational atmosphere necessitated that questions (both the order and wording) were adapted, depending on the interviewee. Therefore, as the semi-structured interviews demand, the structure was used just as a reference.

At the same time, providing the reasons for some questions during the interview proved to be a good strategy, as it kept the dialogue focused, more fluent, more understandable to the interviewees. As a result, the storyline of the interview was easily followed by both sides, which facilitated a stronger identification towards the research project. In addition, these interviews were also revealed to be a vehicle to spread the concept of the Ocean Literacy, interpretation discipline and ocean citizenship with the staff. To conclude, it can be said that these questions 'shook' their minds, encouraging them to think about how they might improve their knowledge and practices. In other words, the information collecting process followed the philosophy of the entire study: the more you know, the better you understand and behave (and answer the question). Obtaining these thoughtful responses, some specific questions became cornerstones, eliciting key information during the interviews.

The following table n.6 shows this structural knowledge in detail.

Table n.6: Findings from the pilot project – crew interview

| | ***Pre-season* (a)** |
|---|---|
| **Section 1** | **About the crew member, where the sociodemographic characteristics of the interviewee are defined.**<br>First of all, their origin and living place questions (n.2 and n.3) tested the potential connection with the local sea due to the proximity to the coast. The answers which supported this premise altered the order of the interview, jumping to the section 4 (emotional domain). |
| **Section 2** | **Diving job to identify their professional background scenario; to explore the motivations and psychological characteristics; and to understand the interactions with tourist during the diving experience.**<br><br>The activities and responsibilities of their job (question n.9) were an interesting exercise to think about their protocols. In fact, it can be said that the list of activities was designed through these interviews and the first participant observations. Therefore, this question was used to talk about their responsibilities and at the same time to check if they followed a standardised protocol.<br>The early conclusions show that this industry is unstructured. The seasonality of the activity does not allow that the diving centres can count on the same staff every season. It means that the instructors usually work in the diving centre by seasons. The high mobility of the staff suggests that the protocol of diving experience should be reinforced every year by the manager of the diving centre. However, this initial work is not always done. As a consequence, the personnel usually follow the standard steps of international certifiers such as PADI or SSI. Therefore, the question n.9 was also used to reflect the existence or absence of a joint performance as a diving centre.<br>The topic about dealing with visitors (question n.10) was the way to introduce the necessity to be trained in tourism guiding. The diving activity was shown as a learning school. The priority and key role of the diving centre are to teach the how to dive. However, a 'fun dive' with a guide, which is offered to certificated divers, is a very popular product. At present, the diving attracts a wider profile because of technical improvements, more economic accessibility to the activity and more awareness about the marine water options within the society. As a consequence, the staff of diving centre has to deal with 'clients' who behave as tourists, therefore, the tourism training should be deemed as a key area within their professional profiles. In this sense, the pilot project confirmed that the staff did not train in communicational skills, interpretation, and tourism groups' management. The lack of those abilities was |

| | |
|---|---|
| | endorsed in questions n.15 about the emotional labour and n.16 about the expectation of tourists. The poor answers around these issues reflected that there is less attention to the dynamics of tourism within their professional training.<br><br>The questions related to the best part of their job (n.14) according to them, contributed to the understanding of this duality. Many of them preferred to teach than to guide because they can be part of the improvement process of their students. They referred to the guiding job just as an opportunity to dive and to show the species that the divers can watch. This basic description reflected how limited the guide performance for the own staff. The enjoyable factor for tourism (n.17) according to the staff was also deemed and inquired by this clear division between courses and fun diving. Regarding this, the basic performance of the trip did not offer a real opportunity to consider the enjoyable part to the overwater moments. In other words, taking into account the current offer, this question emerged not relevant for the study. |
| **Section 3** | **Environmental concern where the behaviours showed as part of the normative domain.**<br><br>The informants were asked to choose five statements of the NEP scale (n.18) that stood out 'as being important, meaningful, or special' to them personally. Respondents had to explain each item of the NEP scale which was selected by them. The NEP scale was turned into a starting point to show their environmental philosophy. A priori, as many of them shared the similar concern about it, the knowledge gained did not fulfil the expectations. However, the change of rhythm that was initiated during the interview meant it became a stimulus to talk about 'green things'. It is usually easier to use statements as base of a conversation than using your own thoughts for it. |
| **Section 4** | **Relationship with the Ocean to reflect the emotional domain with the object of their job and this study (the natural environment where the tourism activity is carried out).** |
| **Section 5** | **The Ocean Literacy as the example of the cognitive domain that might be argued to be required for the job and the communication techniques such as interpretation were assessed.**<br><br>The Ocean Literacy facilitated the thoughtful process about their previous knowledge about the Ocean, considering each principle. 'Tell the thoughts and associations that come to mind when you think about the seven principles of the Ocean Literacy' (OL) (n. 23). |

Although the interviews were purposefully designed to be conversational, aids were used to talk about complex topics.
For example, the principle 6 of Ocean Literacy about the relationship between the society and marine realm, 'the ocean and humans are inextricably interconnected', opened the door to talk about the ecosystem service which is the following question (n.24). Both questions were used to test the Ocean knowledge of the staff without it being explicit that they were being assessed.

Lastly, the interpretation on board was requested, but sadly the answers given were simple, which meant another confirmation about the lack of communication discipline within the industry.

## Appendix 2

Taking everything into account, small changes were done in the first draft of the interview, giving as a result the final draft which is showed in the appendix 3

***Post-season interview* (b)**

The formal second phase with the crew was to carry out the post-season interview. The daily interaction in the centres allowed the researcher to come to know the members of staff, their roles, and the diving performance. During the diving months, some questions were already asked of key members of staff in an informal way (without recording). As a result, the guideline of post season interview was re - designed through that continuous interplay. The final interview guide can be seen in appendix 6.

The post-season interview was developed in order to test the potential changes during the season. The assessment of the staff reflection process related to the Ocean Literacy approach was part of the goals. In addition, as a consequence of the entire shared time, the ocean citizenship notion acquired more relevance in this second part: *What do you think we can do for the Ocean from now on? How do you think you can better encourage tourists to become ocean citizens?* (n. 7 of appendix 6).

On the other hand, some questions which were drafted initially ultimately were included in the final version of the interview, because of the particular characteristics of the diving trips and staff profiles.

- In section 1 of the interview guideline, the analysis of the trips required to ask them about their experience this season, pointing out strengths and weaknesses: *How has your diving experience been this season? How did you feel down there? How have the trips gone from your point of view? Strong points and weak points.* However, this type of knowledge meant that the staff had to show enough experience and reflective mind to give a good answer.
- Due to the standardised training of the instructor or dive master, there is little room for improvisation, therefore typically they do not think about the variables, and even less in how to improve it. Also, few of them had a permanent position and this impacted on their capacity to gain knowledge about the trips and the typical changes that take place

throughout the season. *Can you describe any changes you have noticed during your whole season related to the tourist experience? Related to the tourism (profile-amount-season) and marine wildlife (behaviour-abundance-migration).*

- Regarding the environment, the low priority of the topic in the diving performance and the training program again predicted poor answers. Indeed, considering the Ocean Literacy as the core of the study, questions about the marine milieu were frequent during the season. However, the useful answers usually came from the veterans; staff with a biology degree or owners (who typically had considerable experience in that diving zone). Therefore, the question was deleted from the guideline of the post-season interview.

In general, the risk of making them feel uncomfortable with questions that could be out of their expertise resulted in removing them from the final version of post-season interview.

The process of interviewing was in September to 16 members of staff that belonged to the three diving centres.

### II. Tourist interview

The trial period related to divers was carried out within May and June. During May, the volume of clients was still low. Therefore, the habituation and the creation of a good working environment with the crews became the priority. As a result, the suitable way to approach to tourists during the diving experience might also be identified. It meant that the emphasis was not the interview itself, but the best protocol to collect information from divers without disturbing the experience.

The logistic of diving centres and the design of the dive trip were factors that modified the structure of the interview significantly. The compulsory requirements to dive were revealed as a barrier to approaching the tourist during the pre-dive time. The diver was usually arrive at the diving centre few minutes before boarding to take the equipment, arrange insurance and listening to a quick refresher briefing on safety and signals underwater: this was similar in the three diving centres. Despite this, the facilities of two diving centres made it possible to test the formula of the pre-post interview. In one of them, the facilities allowed that the tourist could have a short interview before taking the boat. Meanwhile, in another one, the

boat was comfortable, and the length of the trip was long enough to carry out the first part on board, before reaching the dive spot.

The first theoretical draft, appendix 4, was tested. During the two first weeks of June, the testing phase focused on the design of the interview. The tourists were interviewed, paying attention to the length of the interview, questions and reactions of divers. The pilot project consisted of semi-structured interviews carried out in the three dive centres. The average length of the interviews was around 20 min (even though some of them reached nearly 1 hour). All of them were conducted in Spanish and English, although some of the interviewees came from Germany and France (and other European countries).

In general, the interviewees demonstrated a positive attitude towards the research study. The style of the semi-structured interview which is carried out as a conversation let the answers flow better. Also, the theme of the study, the Ocean Literacy, usually created curiosity and empathy, therefore as a result; they were more inclined to answer the questions.

Table n.7 shows that analysis in detail.

Table n.7: Findings from the pilot project – tourist interview

| | ***Pre-dive interview* (a)** |
|---|---|
| **Section 1** | **About the tourist, designed to identify the ocean connection through the socio demographic characteristics.**<br>The first section was revealed as a suitable way to break the ice, as the socio demographic questions gave the notion that the interview was going to be 'easy'. Additionally, this information helped to start to talk about the relationship with the Ocean because of the origin place, job or studies. As a consequence, the story of their life was built based on it. |
| **Section 2** | **Diving experience where the motivations, expectations and psychological characteristics were explored.**<br>The natural transition was to reinforce the psychological motivations to dive and to choose Mallorca as a diving destination. In this sense, the question n.10 was designed to see if the expectations of the dive were met. |
| **Section 3** | **Environmental concern with the objective to understand the eco-friendly implication of the tourist as part of the normative domain.**<br>This section helped to shift the topic in the interview. This change of the rhythm refreshed the dialogue. The obstacle to using the NEP scale with this target (associated with the question n. 11) was recognised early on, particularly that there was insufficient time to use it, so the solution was to replace it with a simple question: ***do you consider yourself as an eco-friendly person?*** The objective of this question was to distinguish performers from non-performers of the target behaviour. This question provoked them to consider their environmental philosophy. Within the diving activity, there is a stereotype about sustainability and green awareness, and so most of the answers were positive. That 'compulsory good citizen behaviour' made question n.12 more relevant, becoming an internal checking. Regarding this, 'recycling' was the most popular answer; indeed many times the only one. Some respondents indicated that this answer was enough for them to consider themselves as committed environmental supporters. In addition, the terrestrial reference was still their central scenario to talk about the good behaviour, although the interview was carried out in and about aquatic context. Therefore, the next move was to ask about pro-active actions to preserve the Ocean. The result was a clear mind gap between the environment and marine ecosystem. People have been 'instructed' to have good habits at home, with particular emphasis on recycling, but without promoting a reflective process. As a consequence, society is not used to think about the human |

| | |
|---|---|
| | impact in other contexts beyond the realities of cities or towns. In other words, it was difficult for them to extrapolate the consequence of their habits to the Big Blue, the Ocean. |
| **Section 4** | **Relationship with the Ocean through the personal meaning of the marine realm to complete the emotional domain (which was already inquired during the section 1 and 2).**<br><br>Within this reflective atmosphere about their citizen behaviours, the question n. 13 interrupted in the conversation. That moment objective was to encourage this internal process, expressing their feelings related to the Ocean. That was the most 'tough' question according to many interviewees. However, the answers gave a wide range of categories, notions and feelings. It was revealed as the suitable way to complete the emotional backdrop of the diver. |
| **Section 5** | **The Ocean Literacy as a way to evaluate the level of the previous cognitive domain.**<br><br>The last section was a type of test in order to evaluate their previous knowledge about the Ocean. Again, as it happened with the NEP scales because of lack of time, the aid referring to the Ocean Literacy principles could not be used (question n. 14). Therefore, the interview focused on knowledge of the environmental situation of the Mediterranean Sea. This question generated the last turning point during the conversation. Nearly all of them showed clear ignorance about it regardless of their nationality (even local people). That moment generated another 'awareness moment' about their lack of knowledge but, at the same time, how they could know more. To end, the last question n.15 was revealed as '*the icing on the cake'* in order to show the Ocean as a key player in their lives. The notion of the Ocean as a 'service provider' contributed to that relevance. At the same time, it was an appropriate way to conclude the conversation about the Ocean Literacy. However, once again, the limited answers indicated a noteworthy lack of knowledge about the Ocean by society, even among divers. |
| | During the dive, a priority of the research observation exercise was to monitor the tourist's behaviour related to information seeking and confirming these observations with the associated instructor or guide following the dive. |

**Appendix 4**

***Post-dive interview* (b)**

The post dive phase did not uncover the expected data.

Apparently, the experience was not significant enough to provoke a change in the tourist's perception of the Ocean. The underwater experience in Mallorca does not include the critical factors required to create an unforgettable experience, such as stunning marine wildlife (key species would include sharks or marine turtles) or the abundance usually is the elements to build a memorable atmosphere. Despite that disadvantage, according to many divers, the undersea landscape is distinct in the Mallorca dive experience. However, this was usually more appreciated by expert divers who have a sophisticated understanding of the Ocean in comparison to beginners. The entire offer was not designed to provide a thoughtful experience in any dive centres. As a consequence, the cognitive gain is minimal and difficult to self-assess by all divers (amateur and experts).

Taking everything into account, the general conclusion was that the evaluation pre and post made sense only with students of the openwater course. The first impression is the cornerstone of an experience, and so the emotional domain is the best approach to be explored in this first immersion. The open water students were asked about their feelings right after going back to the boat from the first dive. The first feelings could leave a significant imprint in the minds; therefore it is a source of interesting information (Wallace, 2014). Therefore the first four questions were answered easily. For this group the question n. 5 was not applicable due to the lack of previous experience. Likewise, photographs about these first impressions were taken (always with permission granted). The habit of information seeking was also researched in this version.

Similarly, section 2 related to the improvement of knowledge and resulted in a poor performance as was expected. However, the course is designed to provide intensive knowledge about physical features of the Ocean and its dynamics to know how to dive properly. For that reason, additional information related to the Ocean Literacy is not feasible. As a consequence, only specific conservation messages during particular lessons or the list of species in the diving spot was usually the core information delivered during the briefing.

Regarding the section 3, the outcomes were similar to those above. It was the most reflective phase of the entire interview but, because of the poor design related to the Ocean Literacy, it was the least fulfilled by polled divers (students and certified).

In conclusion, the structure of interview exploring tourism had to be reconsidered. To reach this aim, the second pilot project was carried out to check if an ' a posteriori' shorter interview could get significant information. As a result, the interview in the appendix 5 was implemented since the third week of June. All of changes are showed at the beginning of that final version.

### III. Observation strategy

The first step was to take part of the diving trip without any structured as a way to 'test the water'. This previous informal observation was the suitable method to understand the atmosphere of the performance. The feedback of this first approach strengthened significantly the observation tool designed previously from the theory. At the same time, some questions to the crew about their diving performance (e.g.: n.9 of appendix 2) were part of this contribution.

The base of the observation template (appendix 7) was taken from a template which was used by the researcher in a previous work about marine turtle nesting trip (García, 2013). Its design was an adaptation from Halpenny (2002). The objective was to test the level of consistency between the information provided by the interviews to the crew and divers and the diving experience (design and performance).

The pilot project related to the structural observation was short. The assessment about the interpretation strategy and the connection with the Ocean Literacy produced poor information. It means that the approach was not implemented in the activity, independently of the diving centre. Despite this, the structural observation was followed through 15 diving trips.

The template itself yielded significant results. The guideline of the template draws together the basic framework that this literacy approach promotes. As a consequence, the objective of the structural observation changed and the new purpose was to improve the first draft of

the template in order to become a researching tool for further studies where the Ocean Literacy approach is part of the diving experience.

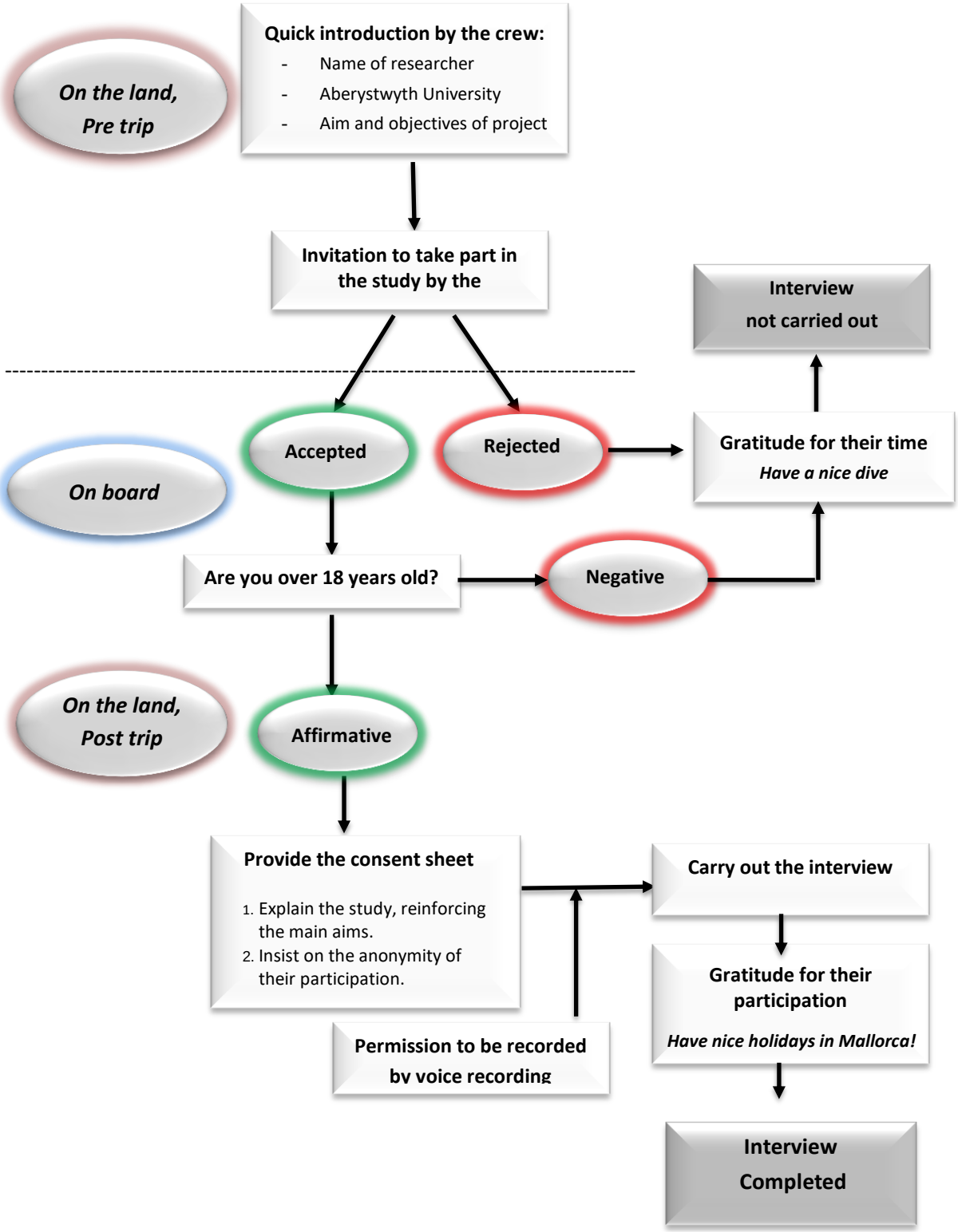
### 3.3.4.3 Knowledge gathering

#### I. The protocol with interviewees

The site of the interview and the accessibility to interviewees were other key factors. The staff and divers interviews were carried out in the facilities of each diving centre, or during the 'dead times' aboard during the diving experiences (such as the journey to the diving spot, the return trip, or in the safety interval between dives). As the new version (appendix 5) allowed that the interview was carried out on the facilities, the limitation of passengers in each boat was not a logistic barrier to getting interviews during the peak season. Of note is that the maximum number of passengers per boat is determined by a stability test of the embarkation (not taking account the environmental impact of the activity). Typically this meant 12 passengers maximum, including the crew, plus 1 skipper. As a result, the diving activity could be covered during these crowded weeks (July and August mainly).

The interviewees were selected based on their availability. The diver was approached as long as that person had finished all diving arrangements (insurance and equipment). It took least 15 minutes to conduct the interview and the entire procedure is described in figure n. 18.

Figure n. 18: Procedure to carry out the tourism interview. Mallorca, season 2016




Source: Based on Garcia, O. (2015)

The approach to divers was always through the previous introduction by a member of staff. After a brief explanation about the PhD study, the researcher asked permission to take part in the diving trip with them. If the answer was positive (no negative responses were recorded in this study), the researcher found an appropriate opportunity to interview them. First of all, the consent sheet was provided, and once it was approved, the interview was conducted. In addition, explicit permission was sought to record the interview, and the age of the respondent was confirmed. To minimise response bias, visitors were assured by the interviewer that their responses would be anonymous. The study abided by the requirements of the Data Protection Act (2018). At the same time, it was highlighted that honest opinions and comments were being sought due there are no right or wrong answers. Respondents were, of course, free to stop the interview and to decline to answer any question should they wish. Responses were recorded as written field notes during each interview, capturing the participants' words verbatim, and were later transcribed. The similar protocol was carried out when the interviews were done on land, in the centre facilities. The significant difference is that these latter interviews were usually longer than those on board, because of logistical reasons and psychological factors (less anxious about the dive, lower sense of anticipation, etc.).

It was decided that the interviews on land must be conducted after the trip, as the diver was more focused on the interview than before or during the diving experience. Indeed, the time on board in the diving trips was only used to create empathy with the researcher and the study, and the interviews were done in the facilities after the trip.

**II. Knowledge collected**

In conclusion, unstructured interview emerged as the best way to work with the staff of centres. At the same time, work meetings were very helpful with managers and some key stakeholders who were more involved in the project. Meanwhile, the semi-structured interviews proved to be more efficient with the divers. They demonstrated their meaning, perceptions and knowledge about the ocean; their relationship with the sea; their opinion about the tourism performance; and their behaviour in marine settings. Similarly, the professional point of view was analysed by unstructured interviews (casual and in depth). The crew performance, guiding training, knowledge about the ocean and environmental

awareness are the key items to study. Also, the participant and structured observation became a relevant qualitative technique to improve the understanding of the current relationship between the diving activity (visitors and staff) and the ocean through tourism activity. The table n.8 gathers that work done, full details of all the observations and interviews locations are in the appendix.

Table n. 8: Summary of the research fieldwork

| |
|---|
| 20 diving trips ( structured and participant observations) |
| 85 diver interviews (semi-structured interviews) |
| 48 staff interviews (pre and post season) |
| 17 key stakeholder interviews (unstructured interviews) |
| 6 months of research journals (notes from interviews and observations) |

The knowledge building process was supported by 85 interviews to divers with an average length of 20 minutes. The study counted with the contributions of 32 members of diving staffs, through 48 interviews (pre and post season). Three managers, 12 instructors (1 freelance), 2 dive masters, 9 trainees, 4 skippers and 2 administration staff shared their thoughts in interviews of typically lasting 1 h 30 minutes. For more detail, see the appendix 8. The (participative and structured) observations were done thanks to shared hours in centres and taking part in twenty diving trip along the season (2016 season) respectively.

The points of views of the stakeholders were covered by seventeen in-depth interviews, typically lasting around two hours. Seventeen key informant interviews were conducted during August and September of 2016 (Table n.9) lasting 1 hour, 30 minutes to 2 hours on average.

Table n.9: List of the stakeholders consulted

| Sector | Institution |
|---|---|
| 2 Government | Agency of Tourism Agency of Balearic Islands *Agència de Turisme de les Illes Balears (ATB)*[6] |
| | Soller Council[7] tourism officer (local government) |
| 7 Tourism industry | Scuba Schools International (SSI)[8] |
| | MARES/SSI officer |
| | Professional Association of Diving Instructors (PADI)[9] |
| | Balearic Federation of Subaquatic Activities (FBDAS)[10] |
| | Mallorca diving Association[11] |
| | Mallorca dive centre Association[12] |
| | Palma Aquarium[13] |
| 5 Science | IMEDEA[14] Mediterranean Institute for Advanced Studies (UIB-CSIC). / Sea Watchers Programme (Observadores del Mar) |
| | Institute of Marine Science[15]. Catalonia ( Spain)<br>ICM Divulga[16]: Scientific outreach |
| | Balearic Oceanographic Centre (COB) of Spanish Institute of Oceanography – IEO17. |
| | Balearic Islands Coastal Observing and Forecasting System (SOCIB)[18] |
| | Geathalasa Association: Subaquatic archaeologist |
| Conservation and | Balearic Ornithological Group - GOB[19] |

[6] Available at: http://www.illesbalears.travel/beta/html/home.html (Accessed: April, 2017) in Spanish
[7] Available at: http://www.ajsoller.net/index.en.html (Accessed: April, 2017)
[8] Available at: https://www.divessi.com/en/home/ (Accessed: April, 2017)
[9] Available at: https://www.padi.com/ (Accessed: April, 2017)
[10] Available at: http://fbdas.com/ (Accessed: April, 2017)
[11] Available at: http://www.mallorcadiving.com/en/ (Accessed: April, 2017)
[12] Available at: http://www.mallorcadivecenters.com/index_en.html (Accessed: April, 2017)
[13] Available at: http://palmaaquarium.com/eng/ (Accessed: April, 2017)
[14] Available at: http://imedea.uib-csic.es/?lang=en (Accessed: April, 2017)
[15] Available at: http://www.icm.csic.es/?q=en (Accessed: April, 2017)
[16] Available at: http://icmdivulga.icm.csic.es/ (Accessed: April, 2017)
[17] Available at: http://www.ba.ieo.es/es/folleto-divulgativo-del-centro-oceanografico-de-baleares (Accessed: April, 2017) brochure in English.
[18] Available at: http://www.socib.eu/ (Accessed: April, 2017)
[19] Available at https://www.gobmallorca.com/ (Accessed: April, 2017) in Catalan.

| | |
|---|---|
| outreach | Ondine (Balearic Marine Conservation NGO) |
| | Pelopanton[20]: Scientific Outreach |

To these research sources must be added other events and activities which contributed to the characterisation of the current picture of diving tourism in Mallorca.

The researcher was part of,

- An open water course (5 days) to understand the educational skills of the crew and the bonding which is generated in face to face training (emotional domain).
- a side mount course (0.5 day) to understand the technical appealing which diving provokes to some.
- the logistic taskforce of a subaquatic photography competition during one day to observe another profile (non - touristic).
- a clean-up of a marine reserve (2 days) which was a good opportunity to build empathy with the main group of eco-friendly divers on the island.
- a short training organised by Red Cross Palma at the beginning of the season where the researcher knew the Sea watcher platform.
- the Posidonia Festival which produced interesting contributions and contacts with the stakeholder network.
- the Sea Watchers Programme event (citizen science program) at the end of the season where the diving centres were star guests.

The data collection demanded a rigorous approach, following procedures and recognising limits to guarantee the quality of the analysis and avoid undesirable impacts. The following section describes the ethic behind the fieldwork conducted.

#### 3.3.4.4 Research ethics

This intensive fieldwork was designed as overt ethnography; therefore, the research ethics were matched with its specific characteristics.

[20] Available at: https://pelopantonblog.wordpress.com/2016/06/02/con-medclic-nos-acercarnos-al-mediterraneo-y-sus-costas/ (Accessed: April, 2017) in Spanish.

To begin, the transparency and transfer of the main goals of the project was core of the introductory communications with the potential actors of the study. The framework of the fieldwork was explained in detail along these first contacts through email; Skype conversations or in person.

In this regard, with the main target group, the staff, the study assumed the commitment to keep them posted and involved during the study. As the emic perspective, the main steps during the fieldwork were agreed and the preliminary findings were verified by them. The study was especially interested in show their voice, consequently, the conversations to clarify and ask suggestion of them were frequent in the three centres.

In the same way, the divers were approached through the consent sheet (appendix 9) with all information about the objectives of the study and the anonymity of their participation. The knowledge building sought the group, as a result, the anonymity was double guaranteed due to the individuality did not need to be highlighted.

As stated in the ethical assessment of Aberystwyth University, all participants were adults (over of 18) to ensure they have the maturity to understand the consequences of a meaningful participation.

The material collected was under the protection of the researcher along the entire process. The recordings and research journals only were consulted by the researcher and some occasions (to support some arguments) by the main supervisor. Consequently, trustworthiness and transparency was fundamental to these interactions.

To conclude, the risks and emotional labour of the researcher were considered across the all steps of the fieldwork. The interviewing and observing process on the boats was conducted under the safe rules of the diving activity and the researcher never felt to be in risk situation. Likewise, the research journals were used to release some stressful moments of the study. Writing (or verbalising in the voice recording) feelings proved to be a good technique to recover from tiredness or frustrations, typical in any ethnography. The topic of the research resulted in a high degree of empathy which facilitated knowledge building but at the same time, it was challenging because of the scarce knowledge around ocean literacy (and its implications) within society. This situation provoked some moments that required additional

effort by the researcher. To illustrate this situation, the next section explains that intensive work from the researcher voice.

### 3.3.4.5 Positionality: My reflective journal

In this section, I'm going to take the opportunity to speak in first person to share my reflective dialogue which was recorded in the research journals across the time in Mallorca.

As the ethnography puts the stress in the researcher in somehow, to begin, I would like to talk about me to understand from which perspective I read the reality and build the knowledge. My first degree was biology with specialization in ecosystem; this starting step laid the foundations of my glance. Ecology teaches you about exchanges and relationships to understand the big picture. In this sense, the relationship which the society develops with its environment is my main framework. Consequently, the socio-ecology became the approach. The eco-tourism, my second academic training, focused the formula on the leisure relationships.

Interest in the ocean literacy comes from the professional path started as environmental educator. The message that reaches tourists can make the difference of the socio-ecological relationships, designing a tourism experience engaged with the place. In this sense, I chose the diving activity due to the inner embodiment of this option:; the possibility for greater empathy with the seas (no filters) and the focus in the entire ecosystem versus a specific species such as in marine wildlife watching.

I would describe my positionality about the case study as: green glasses with interest in the emotional connection to the place in order to reveal its storyline of relationships (cognitive) and to take part of its brighter future (normative).

To make effective this revelation, I decided to live in Mallorca for six months to give me the chance to scratch at as many layers as I could. For that reason, my work started before the diving season to make me do more familiar for the context. The first moments I was an observer who asked a lot of questions to the staff to define the grid of the picture. My notes were related to know 'who was who'; the dynamics of the crews (personal and professional

relationships); protocols of each diving centres; positionalities of the managers about their job; and attachment and meaning with their local sea.

The observation, in this first stage, didn't have a specific place; my strategy was to be there and try to register everything in front of me, but, being aware that I had to take these notes outside the context not to create an assessment atmosphere. To achieve this, every day I recorded my reflections into the recorder while I waited for my return bus. During that returning trip, I wrote everything down in the journals and back to the laptop, the main ideas were digitalized. This required long sessions of work to set good foundations.

Ethnography means to accompany most of time; but also to develop a tight relationship with the diaries to record; to build the emerged ideas; to release the provoked feelings. Therefore, I also used this reflective text to help me to design my data collection; reflecting about the tempos, places, and protocols of interviews and observations.

In this explorative time, I decided that - (to establish trust with the manager) the objective with these gatekeepers to develop a rapport gradually, through short casual conversations (unstructured interviews) without recording (most of them). It required some moments away writing down notes in places like dressing room or the toilets (far away from the participants).

The work on the boats was another challenge. The skippers were crucial in the development of my behaviour patterns on the boat. The priorities were the selection of the least disturbing place for the observations and the tempos for the interviews. But the most revealing outcome was their knowledge about the potential of the activity to shift to the next step due to the observation ability and knowledge about the local sea because of they belonged to the host community and therefore, I opted to talk with them frequently as well. This required reliance on my memory, because on the boat, the ability to record was limited.

Once the exploration stage was complete, the collection of knowledge increased and thus, my emotional labour. The psychology of my involvement acquired more relevance. I tried to write down everything that I felt, thereby keeping my frustration levels under control. Misunderstanding, barriers, block outs and any other problems were poured into the

research journals and later on were integrated into the design of the study to address systemic challenges.

However, the impact of my presence on the diving performance is a key point to handle in this type of studies. As described above, I was identified as a researcher in every moment with the university t-shirt and name tag. In addition, I was usually introduced to divers by the staff. To keep the potential bias under control was a challenge in some occasions. The approach of the research project required the foregrounding of an eco-friendly slant, resulting in some interviewees presenting as more committed eco citizens than truly they were. Consequently, some interactions required extra effort to get meaningful information.

Last but not least, the ethnography does not respect timetables, so even my social life was related to the diving sector for much of the time. It can be concluded that I felt I was always on alert in case of a golden quote, key introduction or networking opportunity.

Once this information was collected, the analysis of the knowledge begins. The obtained variables are considered for the design of a diving experience, where a mechanism of empathy facilitates the cognitive strategy and fosters the committed behaviour. To develop it, the list of codes is grouped by themes which are interrelated in mind maps and afterwards developed, a means of narrative supported by quotes to guarantee the emic perspective. The research has therefore been very much a conversation, and I present my research as an on-going dialogue with the dive community.

### *3.3.5 Analysis of data*

Qualitative research usually faces a paradox: a considerable load of information but from few people (Álvarez-Gayou, 2005). There are multiple types of sources, where the words are chosen as a powerful tool to show the emotional and cognitive knowledge, and the intensity of that understanding. For example, regarding 'place meaning', the words can be a combination of individual's emotional intensity and cognitive response (Wynveen et al, 2010). In this sense, among the two main analytical strategies of text, linguistic and sociological traditions, the latter allows us to treat the text as a 'window' to human experience (Fernández, 2006). Therefore, due to the main objective of this study, the sociological convention was the analytical scheme selected. Within it, the study of 'free text'

from answers of unstructured or semi-structured formats (Ryan et al., 2003) was as agreed to be the most suitable method to breakdown the insights gleaned in this research.

Through themes and codes, the main concepts of information are highlighted, emerging the links which are interwoven among them until the theoretical or empirical explanations are disclosed (Rubin y Rubin, 1995). For that reason, the analysis of knowledge built during the field work was mainly reviewed using the thematic analysis.

The epistemology of the research follows the social constructionist approach where the cultural concepts guide the meaning of the object studied. The language determinates the reality, as Edward Sapir, a noted anthropologist, promulgates: *'We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation'* (Sapir, 1958:69). This paradigm supports the importance of catching the specific words, concepts and meaning that divers use to describe their understanding and connection with the Ocean. To achieve the aim, the research was based on individual meaning and experiences as a vehicle to understand the diving activity. Holistically, the diver's experiences were described by clients (diving tourists) and the structure and performance of activity were 'dissected' by the members of staff and stakeholders (e. g. international certifiers, professional associations). However, the strategic purpose was to understand the diving industry from a cultural conceptual perspective (for Western culture). In other words, this research objective meant that the phenomenology and Interpretative Phenomenological Analysis (IPA), although a priori pertinent, were dismissed due to the necessity of collective meaning. At the same time, it seems important to point out that the critical discursive analysis and content analysis were also considered as co-methods for the assessment. However, in the early stages related to the social actors work, this first idea was dismissed. The narrative related to current object of study (the Ocean Literacy) on the part of the social actors was occasional, often irrelevant and for that reason inconsistent. An analysis of the diving briefing, debriefing and materials (for example tourism brochures) would be inefficient at this low level of the Ocean Literacy implementation. Consequently, the assessment of syntax or semantics was also dismissed because of the requirement of deeper knowledge about the Ocean Literacy by the users to provide more enriched acceptations.

As result, the thematic analysis became only proper analytical method of the study.

#### 3.3.5.1 Analytical Method

The thematic analysis is a process of 'encoding qualitative information' (Boyatzis: 1998). The thematic analytical framework provides a useful basis for analysing the in-depth interviews. Thus the researcher develops 'codes', words or phrases that serve as labels for sections of data. Therefore, the codification and categorization of significant information are the core of that narrative analysis. The identification of patterns, labelling themes (concepts, believes, and behaviours) (Braun & Clarke, 2006), developing categories, and organizing them in systems and mind maps (Lucrezi et al., 2017; Patton, 2002). In addition, as an extra product, the wording could be used later in communication interventions (e.g. interpretation program).

The analysis must be systematic, sequential and organised (Álvarez - Gayou, 2005). The themes are abstract constructs which can be identified before, during and after the information collecting process. The literature review and experience of the researcher are rich sources of themes but, the context is usually the central way to find new themes, as it happened in this study. Therefore, the deductive analysis was the main approach followed by the inductive contributions (of the ground), where the contrast of theory-driven codes is defined bottom-up from data (Boyatzis, 1998). For this, the study must be more sensitive to the context, despite the fact that the observations and finding still have to fit with a theory or constructs (Fernández, 2006).

In this research, the objective pursued was to outline the social constructs referred to the Ocean by divers of Western culture (reference group) in the recreational diving in Mallorca. In this sense, the diving centres staff and stakeholders facilitated a greater integrity of the knowledge with the comprehensiveness of spatial and activity context.

To aim this achieve, the scholars such as Miles & Huberman (1994 cited in Fernández, 2006) point out that there are three types of codes: descriptive, interpretative, and inferential (patterns, themes, casual links or leitmotivs).

- For this, the **descriptive codes**, such as the strong points of diving in Mallorca according to divers (for example warm temperature or good visibility), shaped the diving scenario for the diving tourists.
- The next level, **interpretive codes**, which usually encompass some explanations, had as an example in this study the motivations to visit Mallorca based on the diver tourists' interpretation (for example: good weather or an easy to flight from home).
- Lastly, the **inferential codes**, which included the relationships with this macro ecosystem (emotional, cognitive and normative) and represented insights explored (*'It brings me peace' or 'I spent all summers on the coast'*).

This means that, the thematic analysis went beyond mere descriptive research, exploring the relationships between variables; generating creative frameworks for the interpretation; and assigning relative weight. As a result of the process, the conclusions are argued and sometimes a theory is developed.

Taking into account these premises, the seeking of themes, categorization and mind mapping followed the steps described by Braun & Clarke (2006).

- Step 1: Familiarise yourself with the data.
- Step 2: Generating initial codes.
- Step 3: Searching for themes.
- Step 4: Refine themes.
- Step 5: Defining and further defining themes.
- Step 6: Identification and interpretation of themes.

The process was carried out following the semi-structured interview guide for staff (appendices 2 and 3) and diving tourist (appendices 4 and 5) interviews, and freely for stakeholders. The notes from the observation process, the research journals, were included as well. As participatory-based research with narrative methodologies, substantial verbatim excerpts were essential to making more detailed narrative dimensions, respecting the variety of participant voices and experiences. It should be noted that the verbatim excerpts in Spanish were translated into English for entire comprehension.

The following figure n. 19 is an example of the step 1 & 2 of the coding process.

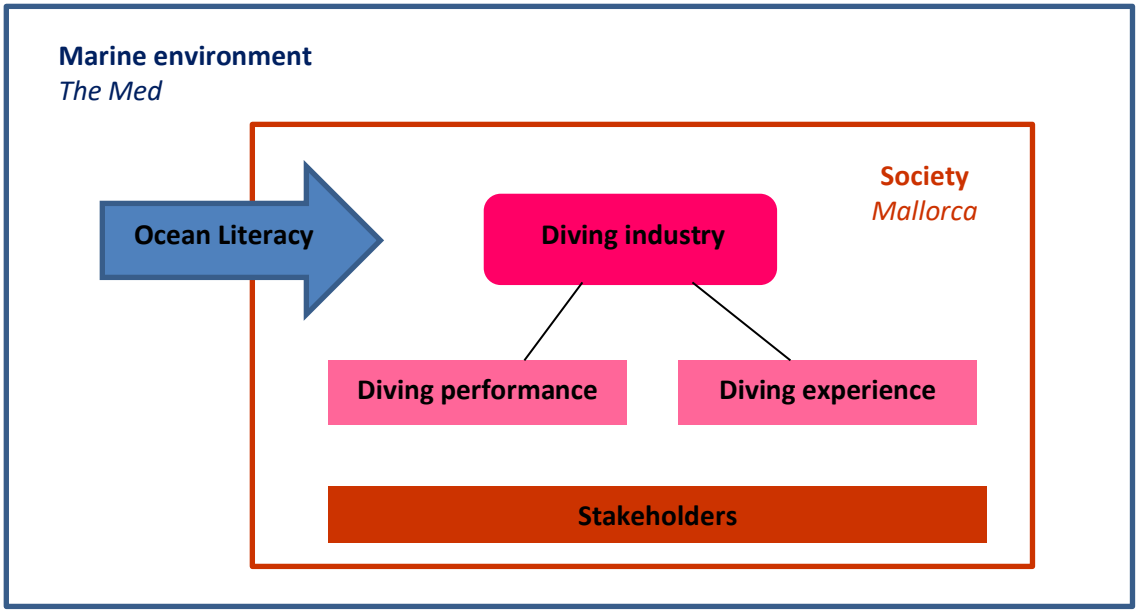
Figure n.19: Coding of verbatim excerpts and research journal notes.

| 1. | Type | Code | Theme | Description |
|---|---|---|---|---|
| 2. | Emerged | Tourist profile | Diving industry | A priori the activity was considered a male activity than female. Indeed, the ecofeminism is a stream which its core philosophy is based on that alleged inner connection between the Nature and females. Authors such as..... defend that. |
| 3. | Theoretical | Marine pollution | Marine Environment | In summer, **the sea is a plastic sea**. Environmental impacts: overfishing, plastic from boats. |
| 4. | Theoretical | Background of Mallorca | Tourism | Strong tourism image about Mallorca related to 'sun and sand' formula. It seems that this situation has prevented the development of a mature diving industry, although the tourist activity on the island dates back to the sixty decade of the last century. What it means **more than 50 years to build a consolidated insular tourism framework. But where the diving activity looks like out of this official structure. An indicator of this 'situation' is the lack of 'real' information about the diving offer in the main tourism office in Palma, capital city of the Island and where the airport is located (the starting point for millions of tourists).** |

Likewise, the saturation technique was followed in the coding analysis (supported by authors such as Santos & Buzinde, 2007) as was used in the method of information collection.

Subsequently, from that basic coding, the coded themes were discussed and structured in sets (step 3 & 4). For this development, the relative weight of the themes in the analysis was considered, as it is evidenced in the following figure n.20

Figure n. 20: The map of themes



Three themes are the basic structure to understand the recreational diving in terms of knowledge gain and marine citizenship:

- The codification was built around the theme called **'diving industry'** which represents the diving activity at national and international level. With the objective to see beyond of the case study of Mallorca, the research consistently sought structures or frameworks where include improvements related to the marine knowledge. Therefore, the activity has to be the core of the analysis system.
- Following the tunnel approach, the next theme was the '**diving performance'**. The three diving centres involved in the study are the speakers of the industry. It is the place for the staff perspective.
- The dive tourists' opinions are grouped into the **'diving experience'** theme.

Based on theory and social interaction during the fieldwork (sport foundations or legal issues as examples), the codes draw a diving scenario not far away from other diving places. For that reason, the analysis needed other themes which reflect the particular characteristics of diving in Mallorca and the focus on Ocean Literacy.

- **Marine Environment:** The study is carried out in a specific sea. The Ocean Literacy approach defends the territoriality of the specific sites where be developed, whereby, the local ocean (sea in this case) deserved to be highlighted independently. The Mediterranean is reflected in the 'marine environment' theme with its particularities and its different ways to be understood.
- **Ocean Literacy:** The main topic of the research, the Ocean Literacy, was revealed in another theme to make sure that the approach was in the main codes for it such as cognitive domain or interpretation.
- **Stakeholders:** Last, but not least, this knowledge stream cannot be integrated without the contribution of the key stakeholders. Therefore, a specific theme was shaped for them.

All of these themes are impacted by a **supra theme: the tourism dynamic**. The complex tourism situation in Mallorca - and really fast evolution, at present - obligates to be

considered as a supra theme in order to take it into account in all of the themes.

The figure n.21 shows the process of coding.

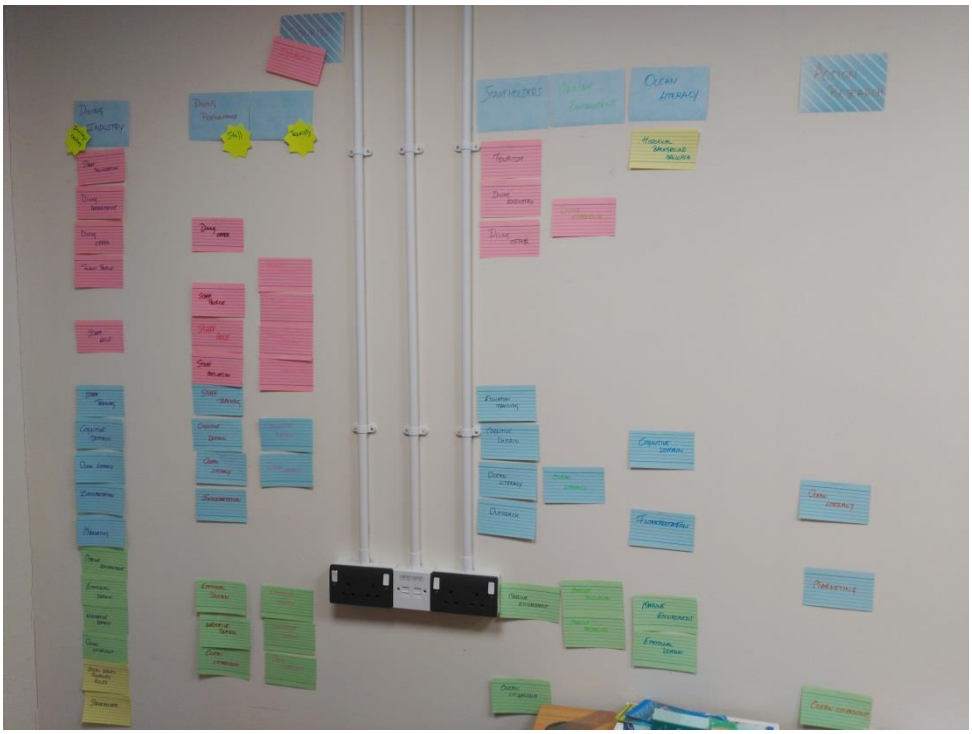


Figure n. 21: Working on the coding system, 2017

The keywords and connections were refined throughout the study in order to ensure, as far as possible, that all relevant information was included (step 5). As a result, the coding process gave, a system based on six themes - subject to one supra theme named tourism dynamic - which grouped 55 codes.

The table n.10 represents the final version of the coding system.

Table n.10: Coding system

| Supra theme | *Tourism dynamic* | | | | | |
|---|---|---|---|---|---|---|
| **Themes** | ***Diving industry*** | ***Diving performance*** | ***Diving experience*** | ***Marine Environment*** | ***Ocean Literacy*** | ***Stakeholders*** |
| **Codes** | Sport foundation | | | | Historical background Mallorca | Tourism |
| | Diving performance | | | Diving experience | | Diving industry |
| | Diving offer | Diving offer | | | | Diving offer |
| | Tourist profile | Staff profile | Tourist profile | | | |
| | Staff role | Staff role | | | | |
| | | | Tourist expectation | | | |
| | | | Tourist satisfaction | | | |
| | | Staff motivation | Staff motivation | | | |
| | Staff training | Staff training | | | | Education training |
| | Cognitive domain | Cognitive domain | Cognitive domain | | Cognitive domain | Cognitive domain |
| | Ocean Literacy | Ocean Literacy | Ocean Literacy | Ocean Literacy | | Ocean Literacy |
| | Interpretation | Interpretation | | | Interpretation | Outreach |
| | Marketing | | | | | |
| | Marine environment | | | Marine pollution | Marine environment | Marine environment |
| | Emotional domain | Emotional domain | Emotional domain | Marine reserves | Emotional domain | |
| | Normative domain | Normative domain | Normative domain | | | |
| | Ocean citizenship | Ocean citizenship | Ocean citizenship | | | Ocean citizenship |
| | Legal issues | | | | | Profile |
| | Stakeholders | | | | | |

The classification of codes sought the interrelation; consequently, some codes were present in all themes like the foundations of the project: Ocean Literacy or Ocean citizenship. On the other hand, the codes were gathered according to the three main areas - tourism; education; and environment -described by colours in the table below.

Tourism Education Environment Others

In this sense, the diving experience with Ocean Literacy & citizenship covers the three domains. The cognitive is understood from education (blue), but the emotional and normative connect that knowledge the local sea, for that reason it is in the environmental group (green).

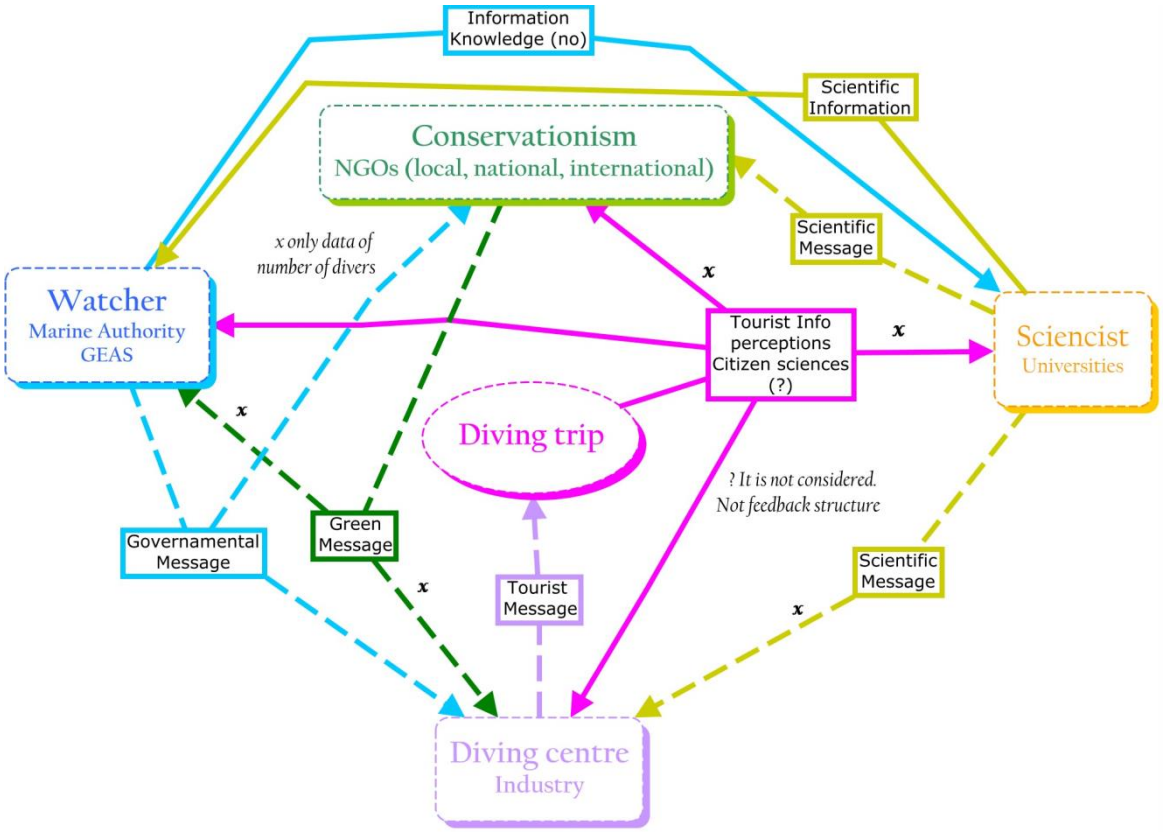
The meaning of each code is shown in the appendix 10 as the step 5 of coding demands.

**Mind maps**

The last step n.6 was to link and organise the groups of codes in mind maps or diagrams (used by some authors such as recently Lucrezi et.al, 2017). The mind mapping has been revealed as a helpful way to show the human natural thinking patterns which are non-linear (Buzan, 1993). This complexity is analysed through ideas, beliefs, values and attitudes and their relationships where cognitive maps play as a modelling technique (Burgess-Allen & Owen-Smith, 2010). Consequently, concept mapping began to consider as a tool for analysing open-ended survey responses (Jackson & Trochim, 2002). In addition, divergent views on a topic are better captured by mind maps, where this broad range of views and perspectives can be treated in order to reach common understandings (Meier, 2007). This situation is common in work with multiple stakeholders. At the same time, mind mapping is suggested in studies with large volumes of audio-recorded data from qualitative interviews (Burgess-Allen & Owen-Smith, 2010).

In as ethnography like this one, the research journals play a crucial role: the reflective voice of the researcher is recorded in them and they are the base of future mind interconnections. The interactions in Mallorca were recorded through these research journals where the researcher poured the analysis of the reality which was arising. As an example, the figure n.22 shows this reflection process through mind maps.

Figure n.22: The collective design of the tourism messages (key players)




These mind maps were the foundations of the storyline development. They guided the narrative and the linkage of thoughts. Once the knowledge was built, the text required reviewing, returning to the quotes to highlight, reinforce or support these arguments. The selection of them was based on relevancy or representation of them. Consequently, the study kept the objective to reflect the voice of actors but in parallel, the reflection of the researcher was the process to interconnect all these voices.

This was the process that was carried out to show the knowledge explored.

Every researcher faces some challenges to carry out the study. The objective of the next section is to highlight these elements which impact on the research design and its development.

## 3.4 Research limitations

At present, research studies carried out on the field have to balance academic requirements and the demand of social actors. Academia must establish bonds of cooperation with society where the needs and particularities of the community should be taken into account. To reach this hypothetical balance, good communication and understanding between both sides become a starting point. It should be considered that academia moves more slowly because it is more reflective than in the business which is fast and demanding of short-term outcomes. As a result, the dialogue usually has to deal with this '*a tempo*'. Therefore, the challenge is to find the common points to get a win-win situation. In this context, action research has been revealed as the suitable type of research to produce meaningful theory (academic requirement) with empirical contribution (business demand) to the studied situation. The design of the research is centred on action, and aimed at changes in the institutions studied, and/or in the researchers themselves (Herr & Anderson, 2005). A core aspect of the approach is to incorporate both the researcher and participants in the study through action-based approaches. For this study, the major empirical input would be to implement change-based interventions with marine ecotourism operators. Successive cycles of collaborative design, implementation, assessment and evaluation allow for an organic learning approach (action research cycles). This requires a participatory action research approach, within the research action learning framework. However, the action research type is based on confidence between both parts, requires time and constant and continuous work with the communities on the part of the University. To sum up, the University needs to be more closely connected to this community to turn into a legitimate interlocutor. This well-developed working relationship with businesses was the foundational barrier to conducting an action research. The innovation of the approach for the diving industry; and the anonymity of Aberystwyth University in the case study were the main factors which can explain this lack of trust scenario. It takes time to develop a proper working relationship, requiring patience and space. Despite this, the study followed this line of thought. The strengthening of this pairing, academia and social actors, was the primary strategy to gather quality information. To begin, the continual updating of the entire study process, including the temporal outcomes was the approach to keep involved the diving

industry and stakeholders. The participation and communication are the ground of a productive mutually beneficial relationship.

However, as mentioned above, the innovation of the approach was itself an issue. Ocean Literacy in the diving activity requires a visionary mind to understand the multiple implications. While it is true that the managers of the diving centres caught the spirit of approach without any difficulty, a meaningful understanding of the topic became a real challenge with other participants. The exploration of the literacy approach reached until a basic comprehension of the complexity associated. However, for this same reason, the improvement through small changes was more significant for social actors involved and the own study. In this same line of thought, the available time with divers was another critic factor. As the topic involves complex and linked knowledge, particularly the emotional domain, the greater the time spent with divers, the greater the reflective knowledge that emerged emerge. However, the diving activity is involved in the tourism tempo, where time is money. As a result, reaching this level of reflection with the divers was difficult. At the same time, exploring the knowledge about the Ocean in a recreational context without feeling that they are being tested is another inner challenge of this type of studies. For that reason, the 'test' was conducted through indirect questions in conversational style.

Regarding the logistics in the fieldwork, the accessibility to the entire diving industry of Mallorca was limited by the work of only one researcher. However, the chosen methodology, ethnography, and the sampling (these three diving centres) were considered suitable to overcome this barrier. This type of touristic activity in the island was covered.

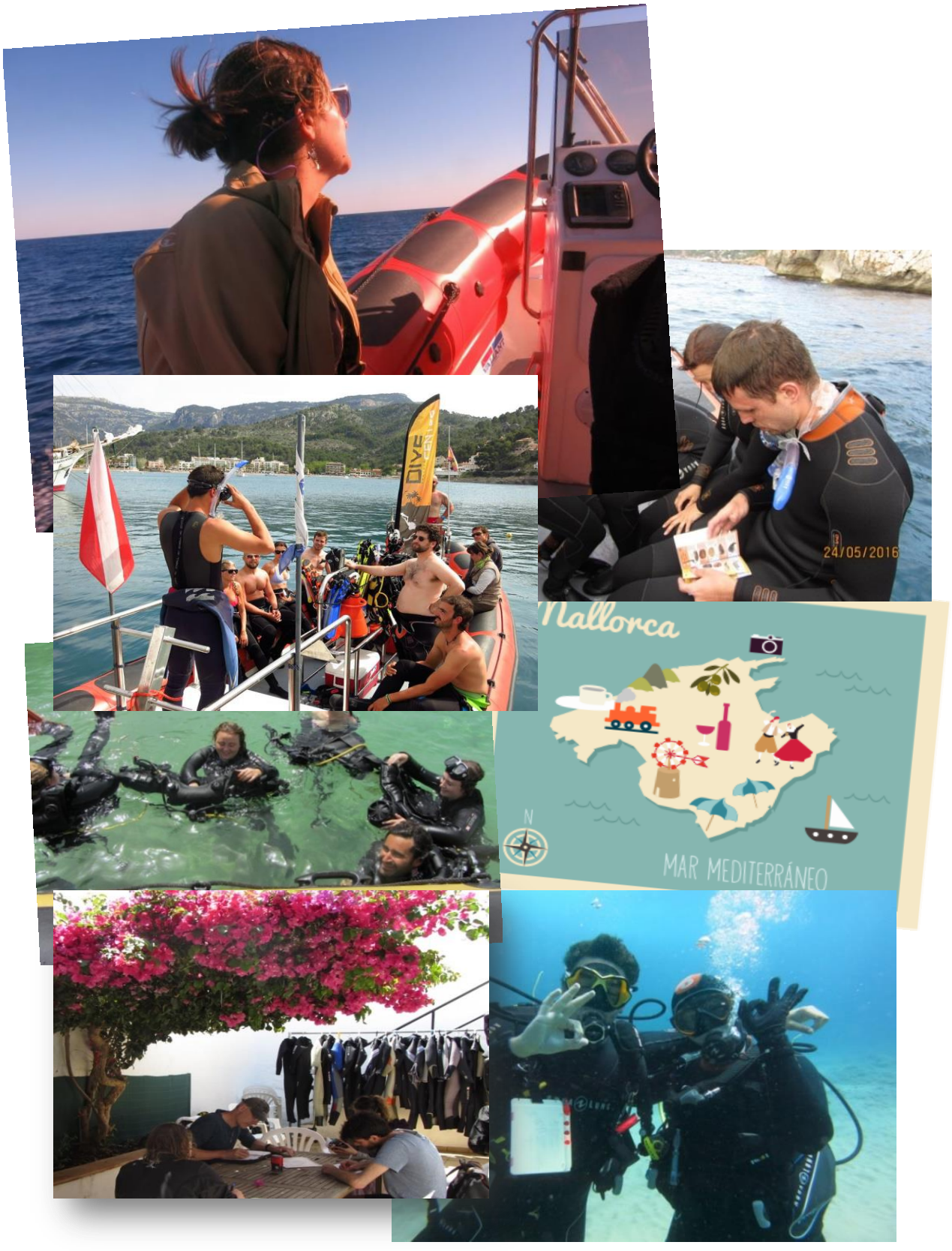
Another element to mention was the language used for this stage. The tourism usually involves people from different motivations, behaviours, and connection with the environment. The study explored these factors as a strategy to understand the tourism satisfaction. To achieve this information, the research study assumed the commitment to respect the native language of interviewees to facilitate the conversation, especially during the questions related to their emotional domain. In this sense, the target of the study included people who spoke in Spanish, English, German, and French. However, the languages spoken by the researcher are only English and Spanish. Therefore, the other

languages were replaced by English mostly, without generating significant issues for the study purposes (due to the good level of English by the non - native speakers).

The key factors were covered and the emerged categories have produced interesting insights to understand the potential of the activity for the Ocean Literacy strategy. However, in order to extend the outcomes of the study, it is further suggested to carry out a quantitative research based on the categories emerged in the study within larger coverage of diving centres.

The following section 2. develops the narrative of the previous thematic analysis. Chapter 4 answers the first research question, and explores the current situation of Ocean Literacy & citizenship in the recreational diving of Mallorca. The fifth chapter outlines the role of the stakeholder framework in this literacy approach. To finish, the sixth chapter develops a theoretical model for the approach as well as the toolkit for its implementation within the diving experience.

# Section 2. Exploration, data gathering, and knowledge construction.



# Chapter 4. How is Ocean Literacy evidenced in underwater marine ecotourism at present?

This chapter answers the first question about the extent of current marine literacy in the recreational diving activity in Mallorca. The exploration, based on social sciences techniques such as interviews and participant observations allowed insights into the diving scenario. Consequently, the narrative has been developed with the verbatim support from the interviews which can be identified through the codes in appendix 8. In this regard, echoing the studies commented by Luo & Deng (2007), this research study also supports that individual perceptions and behaviours are defined by their motivations and interest rather than demographics. However, to assist the narrative, the quotes also are identified by the socio-demographic characteristics of those interviewed voices.

To begin, the diving market in Mallorca is shown as framework where this activity is conducted. Once the general characteristics the destination and diver community are developed, the categories identified during the fieldwork, are used to frame the findings. The description of the diving industry is based on the three key factors which define it: the certifiers as designer of the activity; the training staff as the origin of business mind; and their environmental philosophy as a path towards the ocean citizenship. The following category is the diving performance represented by the centre of the activity. Firstly, the labour of the team is analysed from motivations to background to understand the profile of professionals which this activity attracts. Secondly, as a result of this professional grounding, the design of the experience is shown.

To end, as the last category, all this evaluation ends up in the description of the type of diving experience which is offered in Mallorca, regarding the three domains of the study: feelings; knowledge; and commitment to experience a meaningful dive.

## 4.1 Diving waters in Mallorca

### A broad stroke

It is important to begin by setting the context of the dive tourism sector in Mallorca. The recreational diving in Mallorca could be defined as a free-ranging continuum; on the coast/marine; wildlife-dependent (primary wildlife watching); and run by private tourism operators, according to Higginbottom's (2004) classification. In a mass tourism context like Mallorca, recreational diving usually means an add-on activity within traditional '3S' holidays. Without stunning biodiversity, it is an ancillary dive destination where those divers do not come to dive exclusively. One manager describes it perfectly,

> *'they are tourists because we have to design our certified diving trip in order to go back to the Port, just in time for the lunch (British time, around 12 pm)'.*

Furthermore, even if the sea conditions and biodiversity shifts should be the main factors to design the diving times*:*

> *'it's too important for clients that the diving activity doesn't interrupt their family holidays'.*

In addition, the consulted managers highlighted that the main profit comes from novices, 'try diving' and 'baptism' (Fig.n.23). All of these elements show a clear tie to the tourism dynamic. As a result, they are named 'walk-in' divers - those who show up in the centre to ask if it is possible to dive or to do a course. It means that they belong to the 'accidental tourists' type (Cong et al., 2014) due to the fact that they decided to dive as part of their holiday activities, rather than visiting the destination purely for diving. This classification, supported by the industry involved in the study, means that the teaching services have to be carried out during their holidays. Being more 'tourists' than 'divers', the experience must be worthwhile in

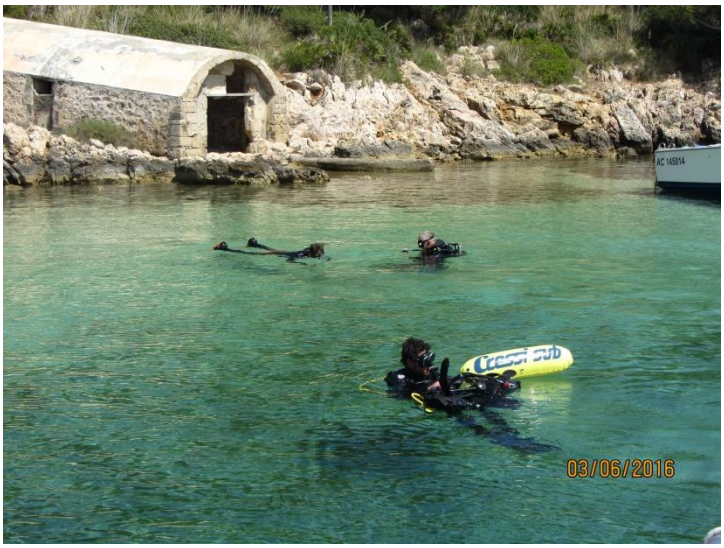


Figure n. 23: Punta de L'Avanzada, spot for try dives, Mallorca, 2016

order to commit part of their leisure time. However, despite this fact, at present the staff still called them 'clients'.

Regarding the diver profile, the studied centres and consulted diving associations noted that Mallorca is a family destination, safe and calm for diving practise. The island offers good conditions for training as well. In the words of instructors,

*'due to the fact the water is calm, great visibility and warm temperature, the training is easier'.*

According to the staff interviewed in these terms, the activity attracts mostly individuals and couples (which may include family pairings) from an international market, resulting from the dynamic of the island.

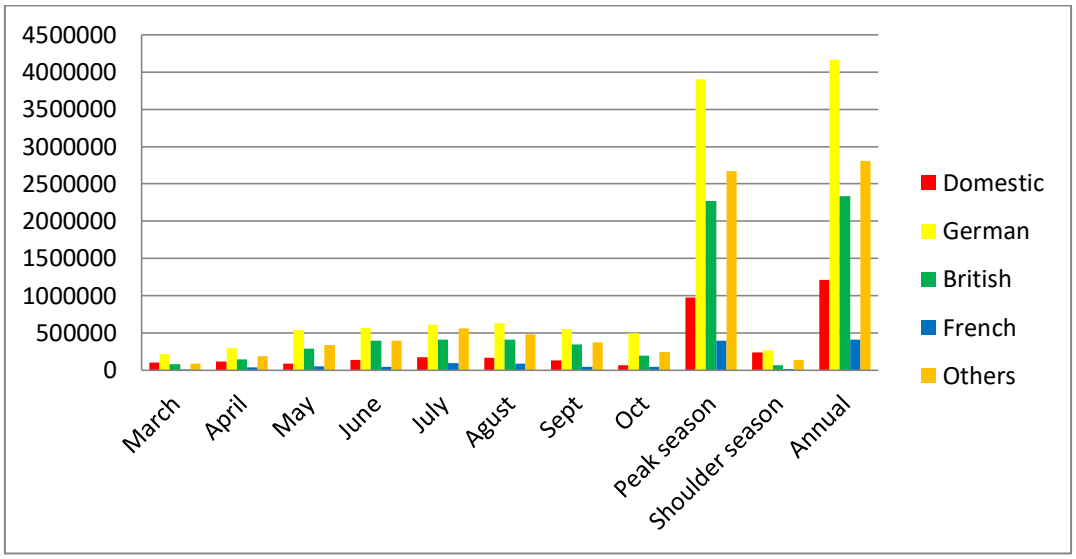
> *'We see many father-son tandem'*, a local manager specified (PM210516)

Mallorca has experienced an increasing of tourists in recent years due to hard years for competitors in the Mediterranean region. According to UNWTO (2017), the growth of international tourist arrivals in Southern and Mediterranean Europe is slightly above 1%. However, Spain shows an increase of 10 % as regards 2015-2016. At present, the main diving destinations, such as Egypt are considered sensitive regions due to the terrorist threat, so the divers are choosing another spots. Consequently, Mallorca is considered as a *'refugee destination'* (PwC España, 2014:8). An indicator of this stage is the *'French return'* as some managers called it.

> '*French tourists had already gone to explore other destinations in the Mediterranean basin. But they have returned'* (Manager of west facade, traditionally of French market (SM040516)).

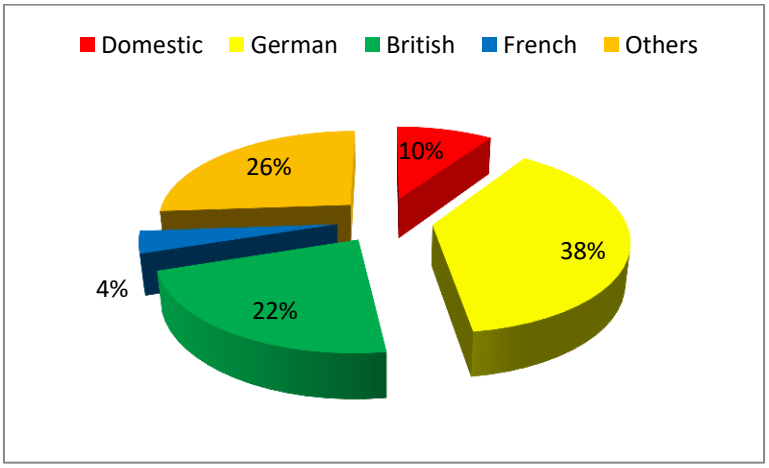
According to the Institut d'Estadística de les Illes Balears (IBESTAT, 2017), in 2016, The Balearic Islands received 15,403,147 visits whose 10,932,632 chose Mallorca, of which they were mostly German (38%), British (21%), Spanish (11%) and French (4%). These statistics are displayed in the figures n.24 and 25.

Figure n. 24: Number of visitor per nationality in Mallorca, 2016




Source: IBESTAT, 2017.

Figure n. 25:% visitors per nationality in the peak season of Mallorca, 2016




Source: IBESTAT, 2017.

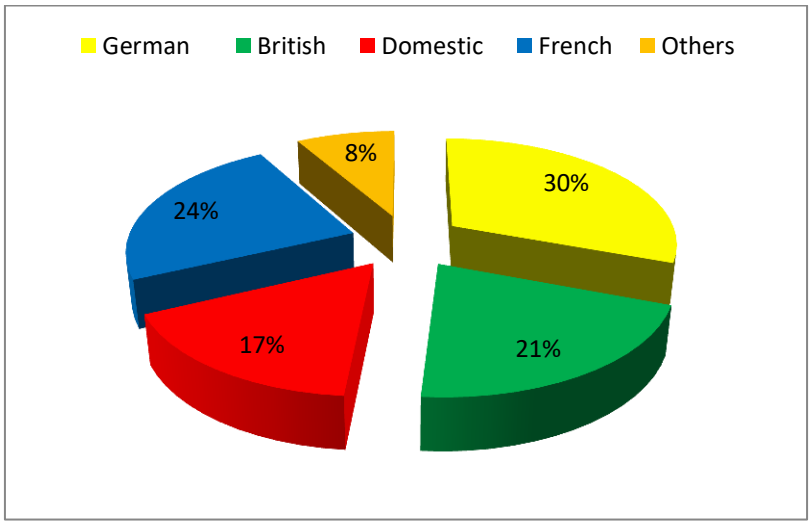
The diving centres confirm the increase of French tourist numbers. However, British and German tourists are the main target for the diving industry (Table n. 11 and Figure. n. 26). The three diving centres show the following tourism profile in 2016 season:

Table n.11: % divers per nationality in the three diving centres of the study in Mallorca, season 2016

| | S | M | P |
|---|---|---|---|
| ***Nationalities*** | Domestic: 15 %<br>German: 25 %<br>British + Nordics: 9 %<br>French: 51%<br>Others: 0% | Domestic: 30%<br>German: 30%<br>British: 20%<br>French: 10%<br>Others: 10% | Domestic: 5%<br>German: 37%<br>British: 33%<br>French: 10 %<br>Others: 15% |

*For more information return to the chapter 3 section 3.4 (Table.n.1)

Figure n. 26: % average of divers per nationality of the three diving centres of the study




Source: diving centres of the study

However, this situation may reverse when the eastern Mediterranean becomes safe again as Mallorca is an expensive destination for divers from North Europe. As a local manager highlighted,

*'Croatia and Egypt offer stunning diving spots with cheaper prices'* (PM210516).

In addition, the consulted managers explained that the divers with strong international experience tend to be very demanding of the activity due to having had astonishing encounters or visiting colourful seascapes like coral reefs. As a consequence, diving in Mallorca is perceived as expensive which another reason to explain the walk-in type market.

## 4.2 Divers in the island

### Profiles based on motivations

There are multiple motivations to dive. The image of the diving destination is drawn by pull/push factors (Uysal & Jurowski, 1994). As such, the divers were consulted about the strong points to dive in Mallorca. To begin, the external factors/pull factors to choose Mallorca as diving destination are limited by the lack of international competitiveness within the activity. As is noted before, Mallorca is not considered as a solid diving destination. The international narrative describes Mallorca as a poor diving destination without any remarkable particular feature. As a German diver pointed out,

> *'I guess after Red Sea, everything is boring because here there are not too many fish. For that reason, we started in Europe to enjoy diving and learning and after that we are going to explore the other diving spots to watch biodiversity'* PD020616 (3).

However, Northern European divers with short experience commented frequently that '*if you compare it with diving in England*', the snorkelling can include satisfactory wildlife encounters to consider it as a good experience. In other words, the image is not static; therefore, individual perception of the attractiveness for diving was shown as random. However, the turquoise waters convinced all types of divers (Figure n.27).

Figure n. 27: Cala S'almunia, Santanyí, Mallorca, 2016.

As was mentioned above, the sea conditions, good weather and high visibility makes diving easier. With approximately 30 metres of clarity, many divers confessed that this part of the Mediterranean invites you to go in. As a result, the snorkelling is good and the 'baptism' of novices is safe because of their crystal shallow waters according to the consulted staff. The transparency of the water generates that the light of the Mediterranean is different.

'*The feeling when the sun goes in the sea'*, was remembered by some of them (MP110616)

As a biologist diver explained these waters are clear because this sea is oligotrophic, which means there are not too many nutrients in the water column. This corresponds with the clarification of many instructors that the filter animals like corals or invertebrates are not common in these waters. As a result, the waters are clear but without too many fish. For that reason, a recommendation from them was to foster the *'beauty of the tiny things'*, seeking these tiny treasures in the walls and sandy bottoms. At the same time, the divers of this island contended that the seabed is rich, varied and interesting. Indeed, the subaquatic architecture was considered as a distinctive characteristic of Mallorca.

*'Diving in Mallorca could mean to do something different. It is special place for lover of lights and shadows due to the seascape being full of caves'* said by this local biologist-diver.

As summary, inn the following figure n. 28, the main positive factors to dive in the island according to the interviewed divers are shown.

Figure n. 28: Strong points' word cloud to dive in Mallorca, season 2016

On the other hand, and as extra bonus of the location, divers pointed out that as northern Europeans, Mallorca is a popular destination for their holidays due to the proximity to their homes. With relatives or friends on the island – particularly for British and German tourists – Mallorca becomes an 'accidental' or accessible diving destination. Indeed, some of these frequent divers organize 'weekend diving trips'. The tourism logistic (weekly flights) and type of tourism (European mass tourism) in Mallorca contribute to the flow of walk-in divers. Broadly, the image of diving in Mallorca perceived by locals and outsiders was an accessible easy place to dive with waters of Caribbean colour and treasures for those who know how to see. In addition, the quality of services was included among reasons to dive on this island. As highlighted by a British dive master trainee with widely experience in Asian waters,

> *'It is more professional, small groups with protocols for the diving experience, including the customer services'* (PT190816).

However, at the same time, the experts point out that internal factors (push factors) are equally important to choose a destination and more associated to their behaviour (Iso-Ahola, 1980). For that reason, at present, the profile of the tourist markets is defined by their motivations (Luo & Deng, 2007). For that reason, the answers of the consulted divers to the question about the reasons to dive in Mallorca, are shown according to the factors of the Recreation experience preferences (REP) scale of Manfredo et al., 1996, chosen as theoretical model in this study and discussed in Chapter 2: section 2.3.

### *4.2.1 Factor 1: Novelty–self-development*

2. Experiencing new different things (REP escape daily routines scale)
8. Introspection (REP spiritual scale)
9. Experiencing excitement (REP excitement scale)
12. Meeting new and interesting people (REP new people scale)
13. Developing skills and abilities (REP skill development scale)

Nature-based tourism motivation
related to Recreation Experience Preferences (REP)
*Manfredo, Driver, & Tarrant, 1996*

Divers of this study showed a wide range of inner motivations. For example, some divers – confirmed by managers – confessed that they got into the diving activity to make their holidays more interesting (REP 2).

> *'I was bored a lot during the holidays on the beach with my wife. So, I sought an activity to spend my time'* a British captain confessed (MD070616 (2)).

More than one expressed that their motivation was that diving is enjoyable. Making friends (REP 12) was also mentioned as well as reasons perfectly expressed such as

> '*for having experiences, which is the real meaning of life',* commented by an student of open water (SC080616)

The economy of experience (Pine & Gilmore, 1998) leads many of these motivations. Similarly, it is a part of identity or status such as being active, adventurous, or wealthy person. This one matches with the popular purpose of many travellers nowadays, to gain some social capital because of the trip (Gössling & Buckley, 2016).

On the other hand, the human ingenuity of diving - '*you can breathe down there!*' (SC080616) - still catches the attention of curious people with science. In this line of thought, filming the ocean was another popular motivation. At present, thanks to audio visual technology, many divers have as an objective to make subaquatic photography or footage to share. As an experienced diver expressed,

> *'the activity is only about catching (shooting) species '*(SD050616).

This necessity to share can be also related to the hedonistic behaviour of the contemporary traveller, as Gössling & Buckley (2016) show as well as it symbolises the excitement for experiment (REP 9)

Equally, this factor encompasses the motivation of some courses students for developing new skills (REP13). In this sense, it is interesting to mention that the gender balance, though is still an unaccomplished business, is close. Although it was not part of the study targets, the observations and casual conversations identified that a young female group of friends see the diving activity as a gender challenge test (Figure n. 29). The social imaginary of diving is a male technical activity according these female divers. Therefore, their motivation was more

related to ego and status which were detected by Mehmetoglu, 2007 in his study in Norway in those who saw themselves as self-confident individuals.

Figure n. 29: female students of openwater course, Mallorca. 2016

> *'It is a girl trip and we thought, why not? We can also do it. And here we are, doing the course. I was terrified at the beginning but now I feel great. We make it*!' a French female diver shared in a casual conversation.

The ancient fear of sea makes diving activity a personal challenge to get over for some divers. In other words, the diving has been seen as a way to capacity building as some staff claim,

> *'it is a matter of personal growth, feeling stronger and confident' (*PM210516).

## 4.2.2 Factor 2: Return to nature

1. Viewing scenery (REP scenery scale)
3. Experiencing tranquillity (REP tranquillity scale)
4. To be care free (REP escape role overloads scale)
5. Return to nature (REP general nature experience scale)

Nature-based tourism motivation
related to Recreation Experience Preferences (REP)
*Manfredo, Driver, & Tarrant, 1996*

In this motivations review, the second factor of return to nature is the most popular, with curiosity as a trigger. They usually start with activities overwater such as sailing to want to discover what there is underwater. The main tourism expectation is to see the species (REP 1). In words of an experienced Spanish instructor,

> *'people are aware of the marine biodiversity due to the documentaries. Most of them lives in urban environments'* (FI040516).

However, the diving experience is the opportunity to see them first-hand. Regarding Mallorca, the most experienced divers commented that the abundance of fauna is limited to areas such as Marine Reserve El Toro, as well as the richness of fanerogamas/posidonia in these waters. In this connection, some North Europeans pointed out that it was not only about the size of fish but it was about the amount of them because of comparison with their homes. A Swedish newbie diver expressed it thus,

> *'Both places (Sweden and the Med) have the similar visibility and big fish but maybe here there are more amount of them'* (SD120716 (1)).

However, it is important to highlight some comments of local divers (including staff) in reference to the changes in our seas. A subaquatic photographer commented that,

> *'Now you have to dive deeper to see the megafauna'.*

For that reason, the microfauna (e.g nudibranch) became the focus and usually was pointed out by the staff or advanced divers.

> *'The tiny life is the key point',* was the categorical answer of a local dive master (MD140616 (1))

Actually, when the diving performance was analysed, the entire structure was addressed to facilitate access to the local biodiversity as the primary motivation for having a satisfactory experience. Yet, a frequent comment was that '*there is not life here'*. The oligotrophic condition of the Mediterranean has already been explained but the real tragedy is the drastic decrease of biodiversity. The European Commission's science and knowledge service states that the Mediterranean Sea hosts 10,000 to 12,000 marine species. However, the Western Mediterranean Sea and the Adriatic Sea have been suffering the largest reductions (EU, 2017).

*'Diving in the Ocean is beautiful, but at the same time, it is sad, above all in places like this one'* reflected by a German diver with wide experience in the island (PD240616 (4))

Therefore, for others, the special encounters or biodiversity was enlisted only as an extra bonus to other type of rewards. For example, it was very popular to find divers who were interested in the freedom and peace which is felt during the dive (REP 3). Maybe it is explained by the highly stressful urban life of many divers. The staff confirmed this hierarchy of motivations and some of them even were shared.

*'For me, diving is about listening your own 'breathing' control. It is to stay in other world, floating. Seeing biodiversity is an extra recompense',* (freelance instructor with extensive experience in the sector and Mallorca (FI040516)).

That feeling of being free and not to have to think was much commented, yet, same divers pointed out that diving simultaneously requires concentration in order to be aware of yourself and your surroundings.

*'Because it is a hostile and unfamiliar environment, you have to focus on own survival', (*local experienced instructor, (MM210916)).

Therefore, probably, the feeling of 'not thinking' is associated with diary worries. The diving is seen as a perfect activity to be free of overloads (REP 4). Going deeper in this notion, some divers highlighted the fact that,

*'I am a different person when I am down there. Because I cannot speak I have had to learn how to communicate there. Even somehow my body language is ready to talk under water… speaking with the instructor. I am enjoying how to communicate in this new world without speaking. The humanity should be able to have this type of momentums without noise'* (MC230716 (3)).

This gives way another critical factor, the inner embodiment of diving activity (REP5). A female diving student pointed out that,

*'I'm learning how to understand the sea and my body down there'* (MC300616).

The somatic society of Turner (Cater & Cater, 2007) and the ecological-self of Naess (Iglesias, 2009) are the foundations of this bodily-kinaesthetic approach. The personal bond - which is increasingly commented - is a truly challenge for the industry. Another middle age student commented that,

*'The Ocean thrilled me when I listened to the silence. I'm not interested in watching animals because you can do during the snorkel or in documentaries. But the silence, you need to dive to be able to listen to the silence'* (MC130616 (3)).

This type of motivation - more intimate - is suitable for the Ocean Literacy approach where the wildlife encounter is not the core of the diving proposal. This variety allows more sustainable activity due to all diving spots have not the same characteristics (e.g.: mega fauna, seascape, or shallow waters).

### *4.2.3 Factor 3: Knowledge and fitness*

11. Keeping physical fit (REP physical fitness scale)
14. Learn more about nature (REP learning scale)

Nature-based tourism motivation
related to Recreation Experience Preferences (REP)
*Manfredo, Driver, & Tarrant, 1996*

The geology of Mallorca can be defined as a huge karst system (Gelabet & Sabat, 2002) where the 'Serra de Tramuntana' range mountain is its emblematic representation and host of human settlements are worth the Cultural Landscape category of World Heritage (UNESCO, 2018). As reported in the official website,

*'The landscape is stunning, steep and rocky. The rocks fall from cliffs creating interesting formations underwater to dive. The wind erosion from northwest contributes to the building of the karst system under the water to dive in caves and caverns'*.


Photo credit: Tramuntana Diving & Adventure

Figure n. 30: Diving in The Tramountane

This type of dive offers 'play and interact' with the surrounding (Fig. n. 30 and 31) as some instructors pointed out. Some divers were encouraged by this interactive dive. A young diver confessed,

> *'I didn't like the first dive but the second one was more active, diving through cave. I felt that I was doing something. Nice active diving!'* (PD030616 (4)).

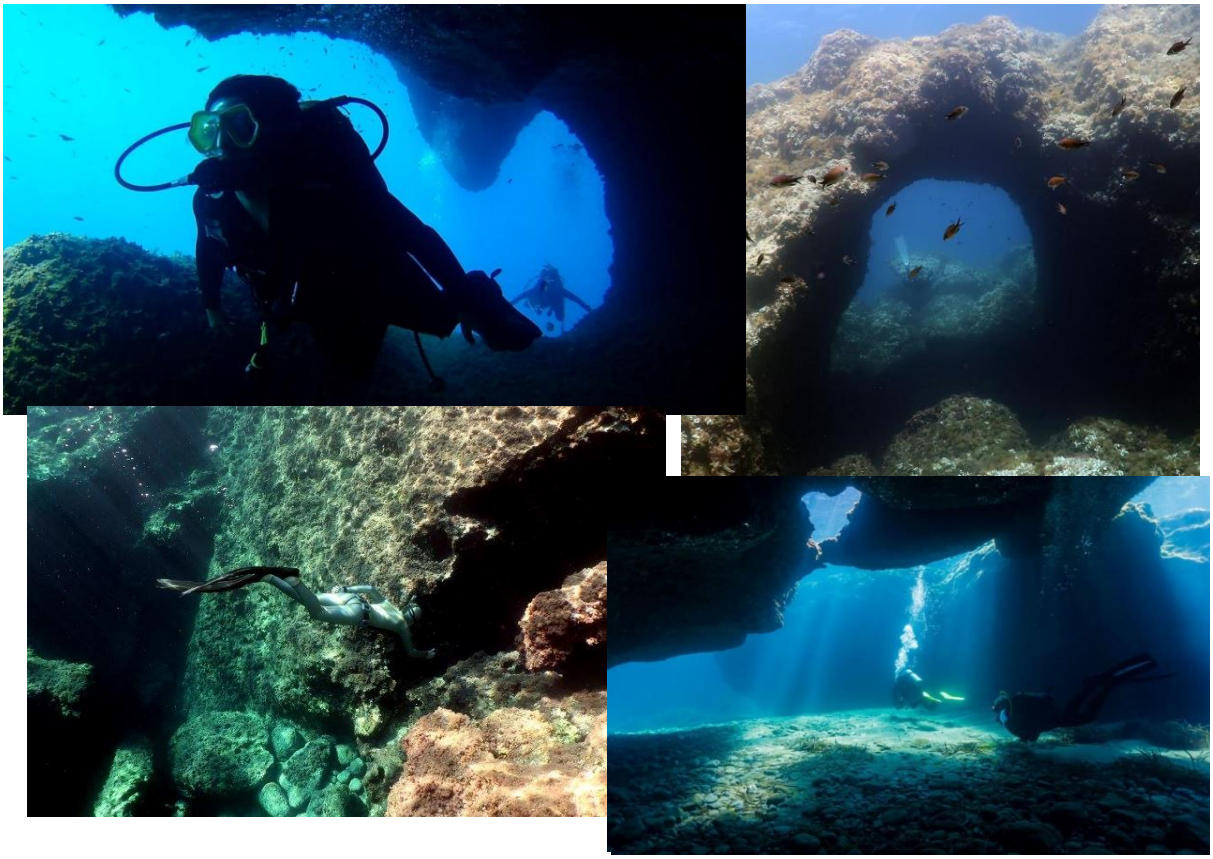


Figure n. 31: Diving in The Tramountane

Photo credit: Tramuntana Diving & Adventure

The government marketing strategy was set in this physical approach, shared as well with part of staff. However, the interest to be healthy and fit through diving (REP11) has decreased. In words of an experienced diver,

> *'The technical improvements in the sector have made it easier and the increasing offer of 'adrenaline seeking' activities onshore have meant that the diving is not a physical challenge any longer'* (SD040816).

For that reason, many divers described it like,

> *'It is a good balance between an outdoor activity and easy sport',* was defined by German diver (PD240616 (3)).

The transformations in the industry and society have attracted to people with other motivations. Regarding the purpose of marine literacy, the REP 14 of learning about Nature should be connected to place. However, the proposal Ocean Literacy & citizenship shows a living seascape with history and connection with the local population. Therefore, in that connection a local freelance instructor suggested its feasibility with an example of diving in caves where the relationship between the karst and some historical chapters of the island (smuggling) could be discovered, while citizen science would show their species such as crustaceans or the blind cave tetra.

### 4.2.4 Factor 4: Escape

6. Being away from the crowds and noise (REP escape crowds and noise scales)
7. Relaxation (REP tension release scale)
10. Enhancing family and friend affinity (REP family relations scale)

Nature-based tourism motivation
related to Recreation Experience Preferences (REP)
*Manfredo, Driver, & Tarrant, 1996*

The fourth factor, related to escape, deserves a more central position. Another consequence of a more urban society is the need to reduce the stress of a crowded world (REP 6). As a consequence, at present, a quiet environment has become a popular enticement for ecotourism proposals. The desire of isolation from human society becomes an attractive feature of the diving.

> *'What do you feel when you are there? Nobody talks to you. The environment is pristine, above all the depths. There are less people '*, a female advanced diver (MC230716 (1)).

Living an over-stimulated world in these hypermodern times, people increasingly seek to 'switch it off' for a while. Some of them love the fact that you can be isolated from their noisy routine, as Iso-Ahola (1982) defends. At the same time, the study showed that tourism diving exhibits other motivations such as family relationships (REP 10). The recreational diving is designed to be practiced by way of buddy system. Therefore, the design compels to you to have this experience in company.

*'I'm eager for discovering it with my family'*, a middle aged student confessed (MC130616 (3))


Figure n. 32: (Father) diver, Mallorca, 2016.

The party composed of father and son was identified as a specific niche by managers. It was a quite usual to listen that the fathers were the driving people to involve in diving activity.

> *'I was 12 years, I did the openwater junior, my father encouraged me',* Spanish student diver of technical course (SC020716).

In addition, some learners confirmed that their motivations were related to organising family/friends diving trips on holidays.

> '*Diving encourages me to travel'; 'I did the course to join to the diving trips of my friends'* were the comments with some British student divers of filmmaking degree in an unstructured interview on board.

Indeed, in systems where the diving culture is the main purpose, this motivation is encouraged. As an example, the Bristish Sub-Aqua Club (BSAC) has used slogans like '*dive with friend*'. This social interaction can be the best marketing channel.

This review of motivations concluded that Mallorca was not attracting any particular market to their waters. Consequently, the fieldwork confirmed that the 'walk-in' diver is the type with multiple motivations as characteristic of mass tourism.

## 4.3 Diving industry

### The rules of the game

The classification of the activity within the tourism framework is a critical factor in order to understand the performance of the activity. This classification defines the type of the operation; its interrelation with the map of stakeholders; and consequently the type of divers. The managers confessed that the divers, once they fulfil their expectations, usually leave the activity. In this sense, for example, a manager pointed out that,

> *'for the young British divers, once gets married; they usually put aside the diving activity because their holidays need to be more familiar' (*PM210516).

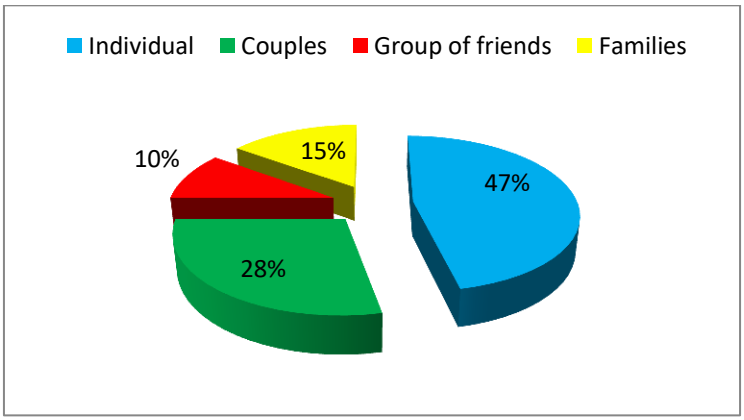
According to that manager, this behaviour illustrates that the activity is perceived as risky practice; associated with youth and male market, far away from perception of a family activity. However, this backdrop is in transformation. The fieldwork observations supported the shift from individual male activity to a shared activity with couples, friends, and families; together with the data offered by the centres of the study (Table. n. 12 and Figure. n. 33)

Table n. 12: % divers per party in the three diving centres of the study in Mallorca, season 2016

| | S | M | P |
|---|---|---|---|
| ***Type of party according to the observations and personal comments of owners*** | Individual: 40%<br>Couples: 25%<br>Group of friends: 15%<br>Families: 20 % | Individual: 50%<br>Couples: 40%<br>Group of friends: 5%<br>Families: 5% | Individual: 50%<br>Couples: 20%<br>Group of friends: 10%<br>Families: 20 % |

*For more information return to the chapter 3 section 3.4 (Table n. 1)

Figure n. 33: % average of divers per party of the three diving centres of the study Mallorca, season 2016




Source: diving centres of the study

These social changes bring new specific niches which should be considered, together with the ad-hoc marketing in order to solve the lack of retention. This would combat the issue suggested by a president of diving association that *'the divers dive once and after that, they move on another activity '.* For them that dynamic explained the immobility of market. However, during the fieldwork, a lack of innovation was observed. The diving offers were surprisingly similar from one diving centre to another. Consequently, in response of the new demands of the experiential tourism (with greater emphasis on individual choice and hedonism), the diving activity could hardly satisfy the divers in the island. This situation can impact on tourist satisfaction, generating these leaks in the diving market. This is largely a result from operating the activity from only one specific angle; without exploring and developing other approaches which this study defends. The fieldwork confirmed that this narrow vision remains in the local diving industry. As such, taking into account the evolution of the activity in recent years, it is time to review the conceptualization of the activity.

The staff during the interviews still supported the notion of adventure sport as well as the classification of the government which considers diving as active tourism. Thus there is a diving offer where the stress was put in the formula of active and physical attraction (Bordas, 2003:6) such as diving in caves. However,

> *'the technological improvements have allowed the wider accessibility to the activity'*, as was remembered by international experienced instructor(MM210916).

As a consequence, the sector, which was founded by the requirements of action and adventure activity, has been transformed into an activity which everyone can practice. Indeed, it is popular among divers to say that,

> *'it is a sport which does not demand to you to be really fit. It is less stressful. It is like yoga underwater, because everything is about breathing: focusing breathing',* local advanced diver (MD110616 (5))

Therefore, according to the classification of Pine & Gilmore (1998) and extended by Bordas (2003), the diving experience in Mallorca was should also be included in the pairing of passive and physical attractions where slow appreciative adventure tourism can be accommodated. Nevertheless, the active and psychological attractive (edutainment experience) and; passive and psychological attractive (contemplative tourism) are still a marginal offer in the industry.

### 4.3.1 Who defines the activity

#### Certifiers

The diving certifiers are responsible to guarantee the minimum knowledge and skills to dive safely. There are some with national scope and others with international cover. The National Federations are gathered in The "World Confederation of Underwater Activities" - C.M.A.S - which was founded in 1959 by 130 federations from five continents. There are four types of diving: recreational, commercial, scientific, and military. Spanish Federation of subaquatic activities (FEDAS in Spanish) is the national certifier and FBDAS is its Balearic branch. As a member of CMAS, its certification is internationally recognized. The strategy of this national certifier, commented by managers, was to become the certifier of every subaquatic activity (sub photographic, free diving or sub fishing) under the supervision of the National Sports Council. As such, the Scuba diving Sports Technician certificate was developed within an official training scheme, which caused conflict with the recreational diving industry in Mallorca. Indeed, the conflict was a recurring topic during the interviews. According to the managers the issue was generated as the activity is understood only as a recreational sport in a tourism context. The diving clubs are the 'natural' place for *sport* diving, meanwhile the diving centres are focused on the *recreational* version. However, both are involved in the same training scheme, sharing the same place within the diving structure which means that both have to follow the same rules even when the purpose differs.

> *'We are a business. We need to make profits but this law is a barrier to attract divers'*, a local manager made clear (PM210516).

Mallorca is a massive tourism destination with an international profile. Therefore the centre services have to consider the linguistic variety and the trust in international certifiers. As a result, the diving centres need international staff. However, the training law blocked this international professional flow due to the fact that any recreational diving professionals, who want to work in Spain, should have got this certification. However, this national requirement was cancelled in the Balearic Islands after opposition by the local industry. In addition, according to some centre's managers,

> '*the education program of Federation is more strict than the international certifiers' ones because it was born as military training'* (PM210516).

This rigidity was not welcome in a tourism atmosphere. This was one of the main reasons which the FEDAS certificate was not popular within the recreational diving activity in Mallorca according to those manages. As a result, the fieldwork noted that the local diving industry showed a strong reliance on international certifiers.

Professional Association of Diving Instructors (PADI) is historically the main representative and has long dominated certifications globally (see introduction). However, in Mallorca, Scuba School International (SSI) is also one of the most popular international certifiers at present. It was founded in 1967 and according to the sector; and in words of some managers; it was the responsible for pushing the diving activity to the next level, becoming a mass activity. Both of SSI and PADI work as a sort of a franchise, with both instructors and centres making significant annual payments to remain part of the PADI and SSI network. According to these managers, PADI is more associated with teaching while SSI more related to the building of diving culture. These were the main certifiers of recreational diving in Mallorca.

A high level officer of these certifiers explained that diving activity has approximately 50 years of history. But ten years ago, the industry reached a decisive tipping point. This was in 2007 when Egypt, a stunning diving spot, was launched as a really cheap diving destination. This fact meant a radical change in the activity forever. Until then, approximately 70% of the new divers usually got the certificate at home. However, during the interview clarified that since then, the situation was reversed; *'now 70% of the new divers get their first certificate during their holidays'.* Apparently, according to this officer, that shift led to the global strategy of the industry to promote diving trips to the most stunning marine ecosystems on Earth. As a result, at present, the diving is inevitably bonded to tourism: visiting places underwater. Therefore, diving activity is not just a sport anymore. However, although this narrative came from the certifiers, an analysis of their training material concluded that they still treated the activity as a sport in their staff training scheme. Nevertheless they provide strong encouragement to divers to travel and discover the underwater world with extensive information about exotic ecosystems such as coral reefs. It is important to highlight that the main ecosystem in Mallorca, the Posidonia meadows, is not included that material. The following analysis develops this situation.

## 4.3.2 Their training scheme

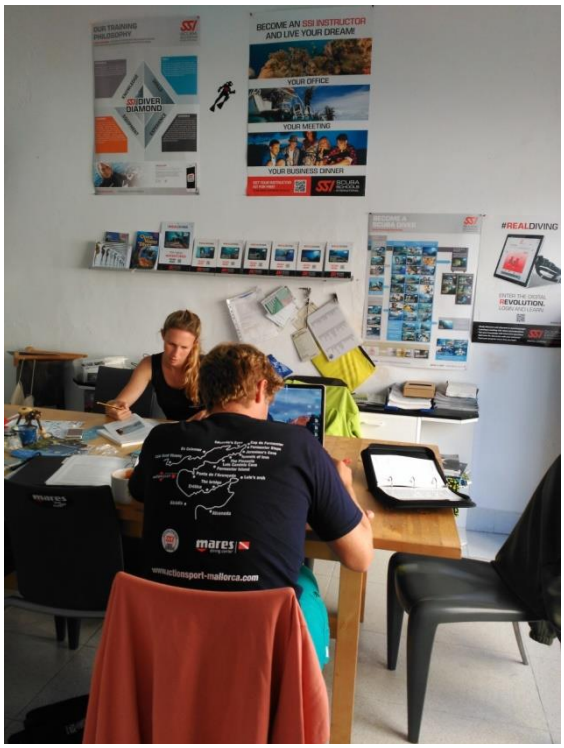



Figure n. 34: Dive master trainees studying, Mallorca, 2016

The entire diving community, staff and clients, has to follow the same training path. Therefore, the instructional materials (the open water and dive master) were analysed in order to understand the knowledge of the Ocean which is involved in the basic training scheme of divers. Taking into account the main certifiers of the consulted diving centres, PADI & SSI books and websites were the source of information.

In general, it can be said that these international certifiers covered the basic knowledge about the marine realm. In the last upgrade carried out by the certifiers, the underwater environment was reunited in one specific chapter/module to highlight its importance, with random environmental messages. It can be said that the Ocean Literacy approach was developed in this chapter. Most of the information was about how the Ocean works: the currents, waves, tides, Earth forces (principle 2) or any key natural element which could impact on the diving performance are shown. The sea was emphasized as the driver of water cycle system and weather (principle 3). The ecosystem services (PADI, 2010) notion (principle 4) was illustrated through oxygen production and the creation of food (eg '*The Ocean is the world' great caretaker'* (SSI, 2009: 5-4). On the other hand, the main animal groups were explained with special attention to the tropical ecosystem, the coral reefs (principle 5). The link concept was summarized with the notion (principle 1),

> *'the ocean contains a multitude of organisms, but at the same time, it can be thought of as an organism itself'* (SSI, 2009:5-2).

However, the lack of information about plants, algae, seeds or other organisms was remarkable, excluding a tiny mention of kelp forest but mainly about the potential risk to

dive into it. Coverage of the '*potentially harmful marine life'* also followed this line. Knowledge about biological and physical properties of the sea was addressed to be respectful of the environment in order to avoid personal risks instead of preserving the area. For example, being careful of jellyfish instead of explaining the reasons why there are too many. At the same time, it was argued that the marine animals are less cautious due to the lack of experience with human beings. As a result, getting close to the diver was portrayed as normal. Consequently, the diving experience could not be disappointing.

Equally, the new approach took into account the home place of the diver. The officer explained that due to this trend of diving in exotic places, at present, one of the main concerns by the industry was to further encourage diving in their home places. Keeping in touch with offers and news about diving in their local areas is one of these digital personal services.

> *'No matter where you live, you can have fun diving. It does not matter if you live near an ocean, lake, rive or quarry; underwater adventure and exploration await you. Local diving can mean discovering wrecks, collecting game, watching fish or relaxing with your friends on a Saturday morning dive*' (SSI, 2009:6-5).

The building of the diving community was the final target. However, the 'place' (local sea) where the action occurs was poorly considered within the 'reflective observation' and 'abstract conceptualization' of diving learning framework (including the certified diving experience). Despite the certifiers encouraging the diving centres to include the local knowledge; this effort was not rewarded in the certification system as was confirmed by all consulted managers. It was not a priority in the diving tests in the diving and in the staff training as was noted during the fieldwork. In other words, exploring the waters in your backyard was the spirit, using the local dive spot as training places. However, as such, the historical and socio-cultural link with the sea realm was absent as well as a limited information about the ecological dynamic. Yet, ironically, the divers interviewed (both staff and clients) proclaimed themselves as witnesses of the diving places. Consequently, it can be expected that this 'reading' of place is only aesthetic for the reasons stated above. As a result, the current material created confusion and fake expectations among tourists who are diving in places like Mallorca.

The British students of an open water course reflected this very well;

> *-What did you learn about marine literacy? - Many things about corals*
> *-And about the Mediterranean Sea? - Umm not really*
> (PC210716 (2))

Regarding conservation messages, few concepts such as the blue footprint were fostered (principle 6) which can be a good stimulus to improve the diving performance. The messages about the fragility of the marine ecosystem and its limited regeneration capacity were slightly mentioned, encouraging its appreciation and respect as a diver. The certifiers had developed the diver's code to contribute to the Ocean preservation with their actions under and over water (PADI, 2010:196). In the summary, the objective of this chapter of the training material was not to show the local diving spots and its environment. The idea was to draw the backdrop of the marine realm and its inhabitants. In addition, the divers are curious, regardless of if they are beginners or advanced. Therefore, the spirit of adventure was promoted in the material (principle 7), for example '*Explore the underwater world'* is a popular slogan in the industry.

On the other hand, as well as the divers, staff could access the specialization courses related to wildlife identification; ecology about some key species such as shark; or archaeology for example, among others. Regarding the education scheme of the Scuba diving Sport Technician, it was relevant that few hours referred to the knowledge about the marine environment, only 5 of 1125 hours. This was another example of the low priority of this type of the knowledge within the diving framework. There was an unbalance in the training between the diving skills and the local knowledge. The diving industry underestimated the stimulus of 'active' surroundings. This meant that the training is still considered it as a sport although operating under the tourism dynamic which lives out of the sense of place.

Under this new backdrop of diving, regarding the digital platform, the consulted international certifiers confirmed that they were involved in a transition period to adapt their education strategy to these 'travelling divers'. *'The general idea is to facilitate and tailor material to whereabouts the diver is'.* To that end, the entire educational material was being updated via digital means, though with similar content.

*'The new structure is more audio visual to make the theory more attractive and easier, as well as the review of the summaries'*, the officer stated.

This new approach was designed to give more free time to the instructor to have conversations with the learner about the most interesting theoretical points for both of them. However, some instructors didn't share the same enthusiasm for this digital approach as it takes the theoretical control away from the instructor, leaving their job only to develop the technical skills underwater. Consequently, the learning process is debilitated now. In response, the certifiers, although being aware that any change provokes resistance, sustained that it was a compulsory transition in this new digital era.

### *4.3.3 Environmental philosophy*

The Ocean Literacy approach is the pathway to ocean citizenship, hence the commitment to the marine realm has to be analysed as a core element. Some professionals in the sector such as instructors and certifiers maintained that the main philosophy of the diving industry is to gain profits. Protecting the sea is secondary. But it is important to remember that the sustainability is reached with a combination of economic, socio-cultural and environmental commitment, the named as the triple bottom (Elkington, 1997). However, the international certifiers defended their environmental awareness. During the interviews, they showed their green side by way of environmental programs. It can be said that at the beginning, these projects were usually related to species in danger or with negative public images such as stingray or sharks. However, according to the interviewed divers, these projects were only conducted in developing countries. Therefore, their contribution as divers ended up being only economic. Again the possibility to develop empathy with this marine issue was dismissed. Without any message or action to reinforce the purpose of the economic support, their relationship remains only as a user. Consequently, the general perception amongst the interviewed staff was,

*'These programmes are only a green washing',* an instructor with environmental degree declared (MI090516)

However, the certifiers maintain that these programs have evolved with projects becoming more global and relevant for European divers. In their websites, the diver can find a combination of ecological knowledge; sets of best practices to dive in fragile ecosystems or

with species in danger; calls of action to improve the policies; and tips to become a responsible consumer. For example, regarding the reduction of plastic on the Ocean, they suggest, *'Refuse the Straw, Wear biodegradable sunscreen; Never Use Products Containing Microbeads; and Stop Buying Bottled Waters'* (Denny, 2018). At the same time, there are collective citizen science projects which involve the diving centre in the collection of data about the debris (e.g: 'adopt a site'). However, the diving centres were still reluctant to use this platform from certifiers. According to them, it was product of lack of environmental leadership in the diving industry or the absence of the instructions to apply it. To reverse this situation, the centre could be the motor for the change through its own pro-active philosophy; or as petitioner to the certifiers.

## 4.4 Diving performance

### *The centre of the diving*

The diving scenario of Mallorca was defined by an industry of approximately 30 diving centres, according to the information provided by officers of local tourism information centre and official material (Consell de Mallorca Servei de Turisme, 2018). However, according to some explanations of the consulted managers, only three were open for the whole year. These centres usually manage enough volume of divers during the summer to cover the entire year.

The business of diving relies on two main aspects: education and recreation. Certification would represent the educational services while the certified divers and snorkelling would shape the leisure service either from touristic or sports motivation. It was already commented that the 'try diving' or baptism was the most profitable stream for the diving centres of the study, resulting in about half of income. The certified dives bring in a quarter of income, meanwhile the final quarter comes from multi-adventure activities. The observations and multiple interviews during the fieldwork explained that due to the sport foundation of the activity, the first attempt to diversity the offer in centres is usually related to water sports, for example paddle surfing. As a consequence, the managers confessed that

the diving offer had to compete with other water sports during tourists leisure time with clear disadvantages. As a certifier's officer noted,

*'the diving is still a sport requiring commitment because of the equipment*',

or with technical issues to handle as some divers reflected,

'*I was a little bit scared because I had a problem with the tank'* (PC210716 (6)).

On the other hand, the diving centres are schools, as the courses are in demand. However, the profile of main market of walk-in tourists was a concern in the sector. The managers highlighted that under these conditions, it was a quite difficult to gain new students who spend three or four days learning how to dive. The certifier explained in the following way,

'*The length of course requires a further commitment by the tourist - diver. In this sense, the shift to the e-learning scheme by certifiers is a good move. In this way, the trainees could study the theory before coming (in the pre-trip phase), freeing up valuable time on the holiday*'

## *4.4.1 The team*

The fieldwork found that the average profile of scuba guides and instructors was formed by young, temporary staff with experiential learning preference. As a dive master stated,

*'Would you like to receive the updated info about the diving spots before starting the season? Yep, on one hand, it will help me to upgrade my knowledge. Yet, on another hand, if I don't experience this 'situation', I'm not going to assimilate it'* (Md010716).

### 4.4.1.1 Motivations

Their managers described their staff as motivated and the marine realm-loving; curious; listeners; and hard workers. Therefore, it can be said that the emotional domain is the motivation to work in the sector. The emotional bond with the Sea showed different grades. When the staff was interviewed about their connection with the Ocean, all of the feelings were on the table explaining the wide spectrum of motivations. Introspection (REP 9), '*the oxygen makes you happier'*; '*I'm happy in the Sea: it is my favourite place*', a Spanish manager (SM040516); Escape and relaxation (REP7), *'I love how you can clear your head'*, a local trainee (MT150616); *Learn about nature* (REP14), ' *Big peace. We can make a huge impact on it. It hosts a*

*huge biodiversity',* a German instructor who is student of medicine *(*PI180816). However, the motivation could be a combination, as explain one of the instructors (MI160616).

> *'Due to the fact that it cannot be spoken down there, diving generates an intimate moment which brings calm. It is like levitating. But equally, it could mean an adrenaline rush such as diving with sharks for instance'* (REP 4 & 9).


However, on the top of this, some people truly felt that the water is their environment.

*'It is incredible! It is the most beautiful thing! I'm more 'water person' than a 'land person'. The human being is scared of the Sea because of the ignorance. When you don't know about something, you usually don't like. But there are too many possibilities in the Sea'*, was commented by an advanced student (SC090816(1))

Figure n. 35: Source: Instructor in a course, Mallorca, 2016

The staff usually belonged to this group of people. Indeed, it was often commented that the big reward for them was to spend time beneath the surface.

#### 4.4.1.2 Backgrounds

They are mainly bodily-kinaesthetic people with technical education in sports grade of physical sports in nature or non-formal education. Equally, some of them possessed associated college education such as tourism or environmental education, and were interested in activities like sailing. Others came from disciplines not related to the marine realm such as law, telecommunication or medicine. Most of them speak several languages. However, they showed a limited marine knowledge which usually is provided by certifiers. This means that they were not experts of the marine realm, their knowledge was as users of the Ocean. At the same time, there is always a few of the staff which use the diving activity to develop their knowledge and skills.

A trainee of dive master explained,

*'place to learn an extra-skill for my marine research career'* (PT190816)

According to the managers, this group (with the scientific background such as biology) usually remains at the activity for a while, developing the knowledge or techniques for their professional future. A priori, these professionals should be suitable for the Ocean Literacy approach because of their background in science. However, these staff confessed that the sector is not attractive enough for them to remain. Similarly, they are not trained to communicate the complex knowledge to divers in an accessible way as was noted during the fieldwork. Consequently, these types of knowledge bodies of their degrees are not reflected in the diving performance.


Figure n. 36: Instructor in DSD training, Mallorca, 2016.

On the contrary, it was seen as some effort to open the environmental departments in their centres which would demonstrate their ocean commitment. In a timid way, some talks about conservation programs in Mallorca were their first steps.

#### 4.4.1.3 Roles and recruitment

With regard to the staff roles, the instructors considered themselves as educators. Most of the interviewed instructors showed their preference for the teaching role.

*'The best part of our job is to teach, to share our knowledge and to see the student's improvements'.*

This is good ground for the Ocean Literacy approach, taking into account that it is has been designed from an educational perspective. However, it was observed that this educator role included limited responsible behaviour knowledge for the environmental challenges. On the other hand, they considered themselves as sellers of an entertainment activity due to the

strong business philosophy of certifiers. For example as was pointed out, the divers are called clients by the diving industry, and the staff never use the term 'tourist'. This nomenclature explains the business approach as it is about selling a service.

Similarly, the notion of guiding in diving activity was also conceived from the sports perspective. In this sense, the guide is the facilitator of the experience, making sure that everything is safe, particularly the diver and their equipment. This role was played by the dive master within the diving business hierarchy. A popular formula in diving centres was to offer positions of dive masters in each season to be trained. The commitment is to work as an assistant for instructors during the entire season while they pass the tests for a dive master certificate. In words of some staff members, both dive masters and instructors, the guide was the assistant to the instructor. It is understood as being an apprentice of the instructor, forming a tandem based on the trainer-trainee relationship. However, this role can be seen more widely. As an experienced manager/instructor points out,

*'being instructor does not necessarily mean to be a good guide'* (MM210916).

Figure n. 37: Instructor in diving trip, Mallorca, 2016.
Photo credit: Soller Divers

The recruitment of staff is a key element in the proper operating of the centre and is one of the pillars to make the activity more professional. The type of profile can define the quality

of services and diving offer in the diving centres. The fieldwork showed that the managers seek members of staff with a sporty profile. This tendency can be explained by the sport framework which still prevails in the activity design. Even among the new generation of diving staff this conceptualization remains,

> *'Could the activity be considered as nature-based tourism? For me, this activity is a sport ',* was asserted by a trainee with sport technician degree (MT170616)

In this line of thought, the managers agreed that the personal charm of candidate is critical in the recruitment process. All of the diving centres noted that creating teamwork is part of the success of a type of activity like this one.

> *'I need a soul, willing, youth spirit. For me, the staff have to be a team working'. 'I chose the staff according to the 'energy' which they gave to me. Body language is the key factor for me. Maybe it is because I don't usually expect any communication degrees. Indeed, it is my way to check this 'innate' communicational skill '.* Part of a conversation with one of managers of the study (SM040516)

In other words, the communication skills were important but the managers thought that they are innate, not learnt. This lack of proper recruitment process corresponded to the image which was well expressed by a certifier officer.

> *'The diving activity is an unprofessional sector, where the hippies are the owners and the white collars are the clients'.*

On the other hand, considering the international market of diving destination such as Mallorca, it was more important that the instructor/dive master speak several languages than show high level communication or interpretative skills.

The local managers of the study explained that the main nationalities which visit Mallorca - French, German and British - are used to receive the services in their language due to their long tradition of visiting. In addition, it was checked that the language skills of some staff was only developed to conduct the standard scripts, they could hardly perform more interpretative experience. In conclusion, the ability in foreign language was revealed as barrier to implement the Ocean Literacy approach. Furthermore, the local staff was represented by the boat skippers in all of centres of the study. The managers recognised the benefit of having local staff to add the local knowledge to the diving experience. The boat

skippers in this study usually helped the instructors chose the best spot and to make the dive more contextualized.

> *'There was a seal colony in the cave of Alcudia and for that reason; the oldest people could see the white shark in the past',* local experienced sailor and skipper (PS010616).

#### 4.4.1.4 Training and their environmental philosophy

Regarding the training of the staff, the training material was analysed and was discussed with staff, the main conclusion was that this learning process was usually addressed primarily on the physical and technical factors. As a result, the interpretation service and other nature and cultural guiding techniques were conducted with limitations. According to the consulted managers, the diving activity has been conducted like that since its foundation, which explained what was observed; that the most of the veterans have got used to enjoying mostly the aesthetic element of the wildlife. Yet, the profile of divers, now, is more varied.

> *'Guides should know what is going in the sea, but I am not sure if they know',* an experienced German diver shared (PD020616 (3))

The diver usually is in the diving spot for the first time, particularly in Mallorca with the main market of walk-in divers. Consequently, the record of this region's dynamics - including its depletion - is not part of visitor's background. Therefore, within the educator role, the environmental situation should be part of their narrative. Yet, due to limited training in this aspect, the staff demonstrated confusing performances and messages. For example, some instructors claimed that species can be fed as well as being touched in order to provide an interactive experience with the surroundings.

> *'It is not good to put too many limitations to live the nature. We need to touch it, to feel it, in order to love it',* was argued by local manager (PM210516)

Despite these examples, the staff demonstrated a kind of environmental philosophy, for example with messages such as picking up litter from the beach; recycling not to have more plastic bags in the sea; and being sympathiser of animal welfare. During the interviews, the New Environmental Paradigm scale, discussed in chapter 2 in 2.3 section was used to

facilitate the discussion about the environmental crisis. Staff showed an awareness of climate changes and their mitigation measures. Coastal destruction; too many cruises; marine pollution by maritime traffic were also part of their environmental concern. However, all of them confirmed that environmental protocol was not part of the business structure.

To sum up, this review revealed that the staff is operative but not innovative professionals. Training can define the reasons for a strategic improvement.

### 4.4.2 Diving offer

The contemporary tourism industry is measured by individual experience. The experience economy, makes a significant impact on the decision making process related to leisure time (Quadri-Felitti & Fiore, 2012). As a result, the tourism strategy is increasingly addressed to enrich the experience, focusing on the tourist's psychology: expectation and satisfaction. In this sense, the psychological security is crucial to connect with the Ocean. The way that the instructor makes students feel comfortable in the water means – in words of an instructor - a 'floor' to start to walk in this new world. Without this floor, it is not possible to walk and failure is guaranteed. The confidence in the instructor is a crucial factor.


Figure n. 38: Poster in diving centre, Mallorca, 2016

According to the staff, the certified divers sought to find something stunning and facilitate the interaction with species. Meanwhile, the students were focused on getting over their limits and improving their skills. The field work showed that the diving offer was framed by a previous learning system in order to a suitable and safe posterior enjoyment. SSI defines this strategy with '*the Diamond Philosophy: knowledge; skill; equipment; and experience*' (poster above Fig.n.38). Regardless of the chosen certifier, the education program follows the

experiential learning strategy. Taking into account Kolb's cycle (1984), the learning path starts in the abstract conceptualization.

This study took part in a diving course for a week where the knowledge transfer was analysed. The first step consisted of gaining fundamental knowledge and skills to dive with security. The theory was provided by way of 'capsules of information' (chapters in the book or e-learning) in order to understand the basic operation of the ocean and human body underwater. Once this information was assimilated, active experimentation (in the swimming pool or confined shallow waters) tested these basic notions. The exercises were designed so that the diver is aware of the limitations and challenges of being underwater.


Figure n. 39: Training session of Open Water course, Mallorca, 2016

After that, individual concrete experience was used as the trigger of reflection. To sum up, the first course (open water) alternated theory with experimentation, stimulating the reflections about their own performance underwater as the way to improve the diving techniques. However, there was no place for thinking about the marine environment itself beyond information for diving (e.g.: dangerous animals). This basic certificate opens the access to diving all over the world. Once achieving this, the industry is focused on providing a satisfactory experience for the diver. Thus, the role of staff shifts from instructor to guide in order to make the dive pleasant (enjoyable and safe as well). In parallel, the learning path

continues with the specialization stage. The diver acquires advanced skills to dive in different contexts or techniques (e.g.: caving or nitrox). As a result, the dive becomes an individual experience where the structure supports a learning cycle of experimental engagement associated exclusively with diving action. Taking into account the strong physical elements of the activity, some divers considered that the diving is eminently experience learning, therefore, there was no place for narrative or another abstract or conceptual manner.

The experience in Mallorca also was defined by the length of the season and the proximity of the diving spots which significantly reduced the shared time with the diver. However, the empathy with the diver and with the Ocean requires time and opportunity as many professionals such as Doug McNeese (2015) - CEO of SSI - defend. The challenge is to create this opportunity with this limited shared time. Therefore, these particular characteristics of diving in Mallorca were revealed as limitations of Ocean Literacy approach to overcome.

An instructor with wide experience indicated it very well.

> *'The difference between working in the Great Barrier Reef and here is the time with the tourists. Because you have more time with them on the boat you have more chance to create empathy/ atmosphere to 'work' with them, including the knowledge shared. The schedule is really different. Here it is so tight'* (PI180816).

Similarly, a dive master trainee with similar international experience suggested that use of live aboard boats would gather the suitable conditions for it.

> *'The sleeping over there could give the chance to create the atmosphere to include the Ocean Literacy into the experience'* (PT190816).

Consequently, in Mallorca the limited time on the boat limits the development of a bond or the awakening of the curiosity. The briefing, interval time in double diving, and debriefing are scant opportunities to introduce the approach.

In this sense, some dive centres of Mallorca organised social events after the dive such as 'paella night' in order to build this community environment. However, these events were not explicitly designed to develop the link with the marine realm, although the social bond could become the first step for the emotional attachment with the place. Consequently any improvement related to this literacy must consider the logistical aspects of this particular performance.

Aside from the fact that it is fast to arrive at the spots, according to the industry, the length of the season in Mallorca was another important barrier (as was mentioned before). The managers highlighted that in three months; they have to earn enough money to balance the losses during the rest of the season (from Easter to May/June). The president of one diving association also added a particular situation of that season, *'When the Easter is early like in 2016 (March), the benefits are lower than expected because they have to open too early'.*

Likewise, those mangers noted that as Mallorca is a family destination, the season is defined by school holidays; therefore the divers start to come in June. *'But it is not until July when the peak season begins'* was clarified by several consulted staff. This means that, July, August, and September were the diving season, although this could be extended until the end of October, depending on the weather according a local manager. In addition the 2016 season was disrupted by the European football championships so the peak season started later, being even shorter. As a consequence, any change involved a high economic risk. The sector attributed this as the main reason for the lack of innovation of activity and a matter of available time.

Figure n. 40: Practice of a diving course, Mallorca, 2016.

In respect to the schedule of diving trips, the operational timing during the peak season was really tight. The popular formula usually was two double dives in the morning for certified divers or practice for courses (if there are two boats available) (Figure n. 40). In the afternoons, another double diving could be conducted; this was the time for try dives and snorkelling. The evening was kept for sunset trips.

On the other hand, the design of the diving trip was checked. The intensive observation process, supported by interviews with the staff of the study concluded with the following standard protocol of diving:

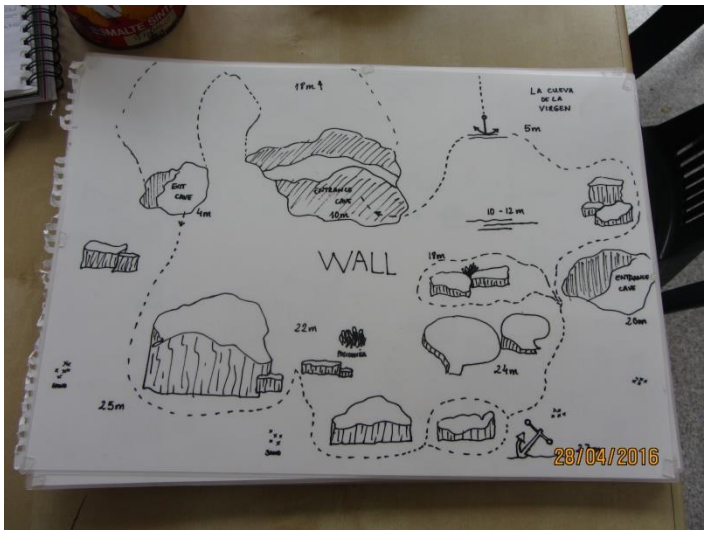



Figure n. 41: Map of a diving trip, Mallorca, 2016.

1. Prepare the equipment;
2. Sign the insurance and other paperwork;
3. Briefing about the dive (with a map of the place, fig.n.41);
4. Telling the client about species which you can see;
5. The security talk on aboard (the highest priority).
6. DIVE. The protocol varies slightly from a diving centre to another.

They all followed the format developed by the international certifiers as was suggested in PADI (2010:39-43).

Regarding the quality of diving spots, the variety and exclusivity- the diving activity is not overcrowded in Mallorca - are other factors. The divers are usually alone in dive spots. This requirement does not, however, apply for diving in protected areas such as El Toro where there is a booking system for diving with few spots. The Department of Environment of Regional Government is responsible for this system. This system does mean that divers have a perception of crowded spots in the peak season, but the stunning biodiversity in them replaces these inconveniences. However, it is notable that the performance related to the script (briefing) or knowledge shared were not considered within these key factors in satisfaction. The knowledge acquired in the training scheme and the local species or some 'cool' ecological facts were more than enough to accomplish a staff performance satisfactorily according to the managers' interviews. However, divers indicated a preference for finding out more during the diving experience.

A French advanced course stated,

> *'I would like to have environmental tips during the briefings to protect the Ocean because most of us are living on cities so we are far away of the Ocean, so we don't know about it and how to protect it'* (SC090816 (2)).

In conclusion, the diving centres of study supported that the tendency of industry - explained above – was not to consider the local marine literacy as a value added aspect of their diving experiences.

## 4.5 Diving experience

### *Meaningful diving*

The entire analysis has been designed to understand the three domains of an experience with Ocean Literacy & citizenship as it was stated in the theory: concerning emotional; cognitive; and normative domains. Consequently, the findings during the fieldwork in Mallorca on recreational diving experience are shown according to that structure.

### *4.5.1 Feelings in diving*

#### *Emotional domain*

McKinley & Fletcher (2010) confirm that the bond with the marine realm can be generated by way of 'holidays and recreation'. At the same time, as Dunlap et al. (2000:437) defend, an exciting experience can generate a change in environmental worldview. The diving activity gathers the elements to provide this type of experience. As a female diver shared,

> *'The dive gives me the goose bumps' (the 'wow-effect')* (MC230716(1))

Regarding this somatic effect, for example, the research has already confirmed that the observation and the sound of the sea can trigger a cascade of endorphins (Hyde, 1924). This can be part of the explanation of comments from divers about spending their spare time on the shore.

> *'Thinking about living far away from the Sea, makes me feel claustrophobic',* was said by Spanish advanced divers (MD110616 (4))

But it is not just emotional responses to the ocean, as there are important responses in respect to the behaviour of our brain/body when it is under water. The fieldwork has proved that there is no distinction between divers and staff, just an evolution because of the time spent underwater. These shared feelings can be the ground for the emotional domain of the activity.

As it was explained before, many divers confessed that they lived the experience by way of the freedom which they experienced (felt). Some interviews with instructors highlighted that it might be thought that the 'tricky' equipment and unfamiliar environment mean a '*barrier*' to the emotional connection with the place and, as a result, it would be easier to find this connection on land, having a walk on a forest. However, the conclusion was that the feeling is associated with the weightlessness.

> *'It is the most similar to what an astronaut can feel '* (MM210916)

Therefore, this feeling gives a chance to establish a special connection with the marine realm, despite the logistical limitations. However, this emotional connection with the diving activity is ephemeral, as was tested during the fieldwork. A possible explanation is the lack of emotional reinforce by the industry. As a result, after a time, the diver needs 'more' to keep 'underwater'. In words of a middle aged local diver,

> *'My friends are bored to dive. They don't feel this passion at all. For them it is like to go shopping.'* (MD140616 (1))

However, in this sense, when the staff answered in this regard, they pointed out that after a while, with more dives, it is unavoidable to feel wrapped by the sea. An experienced instructor suggested that, maybe, the first motivation is not related to the marine realm but it is unavoidable for advanced divers not to become sea lovers.

The approach of the diving activity is to be a facilitator to enjoy the underwater environment. The activity is designed for developing technical skills in order to observe and discover the marine realm. In this sense, the staff reflected that interaction is a way to develop empathy; however, as a dive master trainee explained, the land provokes more empathy due to our higher interaction with it. According to some instructors, the lower connection to the sea is due to a limited '*memory of place*' caused by limited experience in it. For that reason, new divers come to the activity with more connection with the land.

*'We have to understand it to help them introduce themselves to this new world',* it was explained by an instructor with an Environmental Science degree (MI090516).

Actually, the diving activity facilitates this proximity due to the inner conditions of the marine ecosystem. Everything flows, so, animals come to the diver. Yet, for this reason, this fact can create a fake image related to the 'friendly' characteristic of sea animals. Indeed, many divers shared meanings related to harmony in the interviews, showing that idealistic and pristine image about this realm. As one diver of this study claimed;

*'the species of the Sea are happier '*

This social construction or anthropomorphism (Cater and Cater, 2007) related to marine realm is related to stories and movies. Society has long used the Ocean as a source of imagination to make fantastic stories of unknown places and creatures. Human relationship with the Ocean has been shrouded in mystery and unfamiliarity which has been the origin of a wide literature production.

*'It is a mystery that we try to resolve',* a student of advance course commented (SC090816 (2))

But at the same time, this lack of awareness is the ground for the ancient fear which is still remained in the society.

*'The people when swimming usually go around the 'black zone' because there are algae'. They feel scared of the dark unknown* ', said a local dive master (MP110616).

The sea lover novelist – Jules Verne- summarises this very well, '*the human mind delights in grand visions of supernatural beings. And the sea is their very best medium, the only environment in which such giants … can be produced and developed'* (Gillis, 2013).

This collective imaginary is still remained in our vision of Ocean.

*'Ocean means to me, a combination of fear and a new world which is opening'*. (MC010716 (2)).

These words from a beginner diver -who was a pilot - reflected this social perception. The staff agreed that this fear was because of the ignorance which comes from the lack of understanding. Consequently, the certifiers promote the knowledge to replace anxiety and fear. However, the diving activity requires taking this 'scary feeling' into account by their staff. As an instructor shared,

*'I felt scared of sharks. When I got it over thanks to diving, it was sort of liberation! because, at the end, the fear is sort of fascination. And the ignorance is a weight that you have to get rid of' (*MI160616).

But similarly, the industry has to understand that these perceptions are dynamic with fast changes to other images based on science and new socio-cultural interactions. The solid global campaign in favour of sharks can be part of these changes. Hopefully, a similar effort related to Posidonia meadows will generate the same positive answer by swimmers and divers.

As a conclusion, the experience and accessibility (proximity with the marine realm) can open empathy channels. In words of some divers,

*'since you carry out the open water course, you are more aware of marine wildlife, feeling more connected to the environment and respecting it, hopefully. The Ocean, now, is in your mind'* a German diver stated (PD240616 (3)).

The problem emerges when the demands of the diver could be endless as it was manifested by some divers. Once a diver discovers the marine world, some of them want to maintain this novelty.

*'The Ocean is becoming part of my life, but I would like it to surprise me more*, an Spanish experienced diver detailed (SC040816)

But at the same time, they are witness of a progressive degradation of the marine realm.

*'It is really cool to watch fish! But honestly, there are not too many fish'; 'It is not exciting to dive here',* are more than occasional comments from interviewed divers ((MC010716 (2); MD070616 (2))

How to handle this feeling of conflict between the excitement for a new world and disappointment because of the degradation of that new world is one of the emerging challenges that the activity has to confront daily. Mallorca was a clear example of this.

## 4.5.2 Knowledge as tourism resource

### Cognitive domain

The exploration phase was focused on answering a simple question: Can you learn about the Ocean? Categorically, the industry involved in the study of Mallorca believed in a positive answer.

> *'Yeap, 100 % because you are exposed'*, a trainee endorsed (PT190816).

The same opinion was shared by a part of divers,

> *'I saw it, and after that I asked them about it. Because they know a lot, they spend the entire day in the water',* a local diver with wide experience in Mallorca waters (SC040816).

However, this confidence was not supported by meaningful answers about the local sea and observations about knowledge transferred during the diving activity. In this sense, one of the solid conclusions from the fieldwork was to confirm that the information provided during the diving experience – including the courses – could be considered a very limited version of Ocean Literacy. There was not any formal structure in the industry which provides the marine literacy service in the diving performance. As is described above, basic information was included but the system of evaluation didn't prioritise it. Staff shared some knowledge but it was unstructured and poorly interpreted. As was exposed, the staff is not trained in nature interpretation beyond some 'cool' facts about local species. A consequence of this lack of formal transfer was that the knowledge about the diving ecosystems is not always scientifically valid and up to date. The narrative is neither based on official sources (e.g: scientific institutions or NGO's). Despite this, it was observed that they made confident interpretations based on standard surface knowledge such as a predator- prey dynamic based on which one is behind the other; or behaviours like stirring the seabed to attract fish because according to them, these animals are curious.

The members confirmed that their main sources of information – like for clients - are their own experience; other colleagues; and the Internet. However, the fieldwork confirmed that there is not a proper structural exchange from seniors to juniors. The activity was still run by the older generation. Yet the local knowledge - to develop the sense of place - usually lays on senior hands.

*'The old managers who usually have a strong background about the local knowledge don't usually share it with their staff*', confessed a certifiers' officer.

However, as has been explained above, experience without proper knowledge can bring misunderstandings; the transfer from other colleagues can reproduce or amplify these misinterpretations; and the Internet can host inaccurate information. As a consequence (witnessed in the fieldwork), there is a risk that they play *'Chinese whispers*' with clients, as well as the training of junior staff can be impacted.

***Diving courses***

Regarding diving courses, most of the divers agreed that these sources contributed more to developing empathy with the Ocean than to gaining proper knowledge about it. As an explanation, a certified diver stated,

*'these studies do not provide information about the Ocean, just teach you how to prevent the damage with good practices as a diver'* (MD140616 (1)).

In this term, these staff didn't consider it appropriate to change the diving performance to encompass the Ocean Literacy & citizenship as a layer in the entire experience. Indeed, the observations revealed that some of the members of staff reduced the time with the divers to cover only what were strictly necessary. These members of staff thought that the pre and post trip periods and interval time were not assumed as part of their duties. Ironically, any guide on land can tell you stories about the forest or lake which are guiding but these 'guides'/dive master just shared mainly the technical information to dive which meant that they behaved as 'teachers' not as 'guides'. Ergo, they suggested to include the literacy stream through specialist talks or specific courses, rather than embedded it in the everyday dive experience.

However, without proper guidelines the Ocean environment interpretation becomes more complex due to the human inner bias towards the land, already commented on. This is compounded when the information provided during the diving experience is insufficient to know this underwater world. The dearth of appropriate information reduces the possibility to 'read' the new scenario properly. The Ocean is an unfamiliar ecosystem for the human being. Despite the long historical relationship with it, accessibility is still a challenge. As a result, the society has only recently developed empirical paths to create its own

understanding (memory of place). The ecological dynamics and their transformations follow specific rules that are being unravelled under difficult conditions (defined by logistic barriers; blurry stewardship; and limited interest to date). One of the consequences is the scarce inclusion of the marine knowledge in the education system.

> *'We don't learn about local marine wildlife at the school'*, a diver - who was a local teacher – explained.

When the knowledge is not under control by the formal system, another channel takes control. It is popular amongst divers, that information can be acquired from online resources or television.

> *'I learnt about species thanks to documentaries',* was confessed by a local beginner (PC250616 (2)).

The interviewed divers argued that these sources are enough to understand the marine realm rigorously. Friends, relatives or local press are another information point. However, this means that there is no official knowledge transfer in diving. Consequently, the learning process during the diving experience was strongly personalised.

To begin, depending on the instructor; the interest of the diver; and his/er background, the learning experience was different. For example, as a trainee pointed out,

> '*if you are from business or humanities, here you learn a lot about the physical knowledge of the marine realm. But if you sail, some fish are familiar ',* a German openwater diver (MC170616 (5)).

***<u>Fun dive</u>***

Regarding the certified diver, surprisingly, it was more than frequent to find divers with limited knowledge about the Ocean, yet quite good experience as a diver, and an interest in knowing about the marine realm. Indeed, the diving staff considered the cognitive domain as a specific value of the activity for some divers, '*because there are too wide interests'.* However, the fieldwork verified that the staff either evoked the curiosity for the underwater world, just by providing the information when it was required by the clients: being reactive (acting just as an answer). The staff justified this because divers didn't usually ask questions. This situation can be explained by the strong confidence in their knowledge of marine realm showed by divers during the fieldwork, although it could be based on standard and

sometimes misinterpreted information. Or it may be as some of them didn't expect that the cognitive factor must be included in the diving activity. As an experimental learning approach, the industry trusts in the self - learning by divers to know properly about the Ocean.

> *'I prefer to see it than asking about it, discovering it by myself',* a trainee.

As a consequence, the staff understood that if the diver didn't ask about specific topics, it was not part of their job to provoke curiosity or provide specific knowledge. According to them, most of divers were in the aesthetic layer with some cool facts about key species. The work in Mallorca confirmed that the aesthetic layer controls the diving language therefore this language requires a deeper understanding to comprehend the interface between the diver and the sea.

To sum up, Mallorca offered a diving service classified as '*interpretainment*' (Larsen, 2003), just for pleasure-seekers to get the 'wow- factor'. The actual accuracy of the information here is in the back seat. However, this situation can impact on tourism satisfaction negatively because of lack of credibility.

> *'I feel that the guides are going to tell me what I want to hear',* a German experienced diver (PD020616 (1))

In conclusion, the cognitive factor has a low priority in the experience delivery, turning it into what has been described by instructors as '*tea-bag diving'*.

> *'They come to the centre, they put on the wet suit; they get on the boat; they jump to the water; they get in the boat again; they come back to the harbour and that's all',* as was described by a local manager' (PM210516).

In this, it can be deduced that the performance trusted the 'performance of the sea' to get the positive satisfaction of the diver. Animal encounters, stunning light, or unexpected events underwater were the 'aids' for an unforgettable diving performance. However, in this context, the Ocean Literacy was rarely guaranteed.

Figure n. 42: Time with divers on board, Mallorca, 2016

#### 4.5.2.1 Language of diving

The shared hours with divers in Mallorca waters brought interesting reflections related to the transfer information during the experience. Little by little its particular language was dissected as is shown.

The language of the diving was addressed to dazzle by way of the stunning marine realm. The aesthetic layer was the main interface of the diving language and it was prompted to be left astonished underwater. Zeppel & Muloin (2008) prove that one of the psychological benefits of marine wildlife experiences comes from aesthetic and emotional aspects. But at the same time, the image of spectacular wildlife driven by the documentaries described above is a hard competitor and it can affect the future diving experiences.

> *'Would you like to recommend Mallorca? Spend 300 euros more and go to Thailand. Here you need to dive 9 times more to see something',* a local beginner diver (MD130716 (2))

As a result, the 'ordinary diving spots' are marginalised in marketing scheme (including diving shows and material). These circumstances usually affect the satisfaction of the diving experience as the expectations were not fulfilled and the staffs have to handle this disappointment. The marine biodiversity is shown in the media and marketing with their vibrant colours and at amplified scales (hyper reality). However, when the diver has the

encounters with wildlife, the colours and size are different. The deeper one goes into the water column, the less ability the human's eye will have to see the colours. As a consequence, using the specialised cameras to catch the marine biodiversity is a double edged sword. On one hand, it is a significant aid to show the attractiveness of the diving spot to grasp new divers. However, it can create fake expectations, and disappointment could emerge, which could mark the entire experience. At the same time, the 'right colour' masks the current marine environmental situation.

The experienced seascape should be 'colourful and blue' as in documentaries, but if it is brown, discontent appears as it was commented by some divers. Nevertheless, the impacts in Nature bring along homogeneity. Against popular perception, if the blue is the more dominant colour down there, the lower the biodiversity is hosted. So in this case the blue colour means a degradation of the ecosystem. This loss of diversity always entails simplicity which is opposite to the beauty of flourishing (so requested by the divers).

Besides the colour, the amount of diversity was also another aesthetic factor in the diving language.

> *'This is not the Caribbean Sea, therefore you are not going to see it with full of species',* it was a popular saying of the industry of Mallorca (PI020616).

Some domestic destinations are characterised by the scarcity of mega fauna such the Mediterranean which is oligotrophic. Therefore, a paradox was generated when the diving spots do not possess the created beauty in the collective imagination. As a consequence, competing with the exotic places was an important barrier to deal with by diving destinations like Mallorca.

> *'We started in Europe to enjoy diving and learning and after that we are going to explore the other diving spots to watch biodiversity. (…) For me, the Ocean is life, and here, there is not life. The strong point is the seascape',* German experienced diver (PD020616 (3)).

On the contrary, resulting from the marine reserve effect, divers in these particular protected areas showed different perceptions about the strong point to dive in Mallorca.

> *'It has been a great dive because I saw different species (…) you can watch big fish' (in el Toro),* a male beginner diver (MD130716 (4)).

Divers with experience in exotic places also agreed: *'If I have to compare Thailand with Mallorca, the last one is darker, but at the same time here you can watch bigger species',* a middle aged Spanish diver (MD140716 (3))

Apparently, the school of teleost fish was impressive enough to fulfil the satisfaction of demanding divers. So, the size is another aesthetic issue. The diving language reinforces this perception that the bigger is the marine creature, the better is the diving experience (e.g: tunas or marine turtles). However, at present, in places like the Mediterranean, with a loss of 41% of marine mammals (EU, 2017), the biodiversity shows a different size. The exploited ecosystem usually hosts the micro size biodiversity because the megafauna is usually more vulnerable to the changes. In Mallorca, the star species are micro (fig. n. 43) as is highlighted by some divers. A student of a technical course highlighted that,

> *'the divers have become experts in tiny life because there are not macro fauna anymore, (…) the macro photo… it is the option'.*

Photo credit:
Tia Coixeta
(experienced diver of Mallorca)

Figure n. 43: Microdiving in Mallorca

Regarding the role of international certifiers in this term, the study verified that their marketing materials were usually based on this standard beauty without considering the meaning in local spots and thus contributing confusing messages. Again the lack of sense of place was present in the daily routine. For example, the poster with the exotic Lionfish (*Pterois Miles*) was popular in diving centres of Mallorca. Yet this species is from Western Indo- Pacific, and is an invasive species in the Mediterranean. However, despite this, some consulted managers and officers still thought that these images were more attractive than local ecosystem like the Posidonia meadows. Therefore, marine ecology and associated socio-historical background were marginalised in favour of aesthetic factors.

Another example pointed out by the staff was the complaints of divers about algae which covered the sea bed, *Acinetospora crinita*. This is an endemic but seasonal species; however, the divers preferred another one, named *Asparagopsis armata*, which is invasive but prettier than the previous one (fig.n.44).

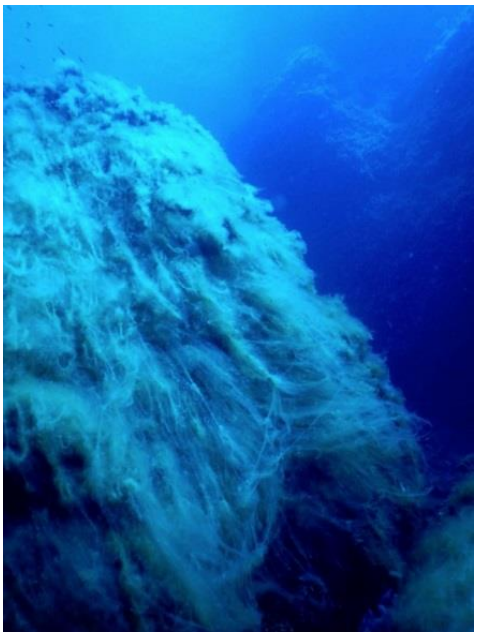


Figure n. 44: Acinetospora crinita Asparagopsis armata

Photo credit: Laura Royo. IMEDEA.

This is an example that the knowledge and meaning of each creature and the entire milieu (including human relationship) demonstrate the beauty of sea to re-educate human eyes.

Ultimately, beauty is a cultural construct which is in constant change. It depends on the beholder's eye, but it is shaped by the knowledge and tools to interpret that ecosystem.

> *'Here is a nice place to dive because of good visibility and biodiversity, if you compare it with diving in England',* a British beginner (MC070616).

In this sense, many divers thought that Mallorca waters host colourless species. Conversely, the experienced divers argued for the colourful seascape formed by the micro species such as nudibranchs (fig.n.45). Again it is a matter of how to look. But to see it, the knowledge and skills have to be widely developed. Micro diving is the future for many destinations. '*The beauty is in the details*' was the mantra for many experienced local divers. They explained that the same diving spot was different when the micro replaces the macro perspective. This can be translated as an opportunity to make the spot more attractive to local or frequent divers, and arguably allows for a better connection to ocean awareness.

Photo credit: Tia Coixeta (experienced diver of Mallorca)

Figure n. 45: Nudibranchs in Mallorca

In addition, these divers also shared that a seascape with micro diversity allows that divers could enjoy the slow pace of the activity by being calm and relaxed (from ecotourism and slow appreciative adventure perspective). Therefore, the observation of marine life could be done with enough time to learn. Conversely, they highlighted that the saturated waters of mega biodiversity are an explosion of life with colours and movements. A diver remembered in a boat conversation that,

> *'when the experience is full of encounters, it is usually difficult to remember all of them in order to have a conversation about them with the staff on the boat'.*

This means that the overstimulated scenario without proper guidelines is perhaps counterproductive to conduct ocean literacy. This is another paradox in the industry as a certifier officer highlighted and was commented on by some divers,

> *'Here you can watch another type of fauna. It is another type of scenes, it is less crowded, which it is great. In Thailand, it is overcrowded, ruining sometimes the experience',* a local beginner diver (MD130716 (2))

Too many things in front of the eyes do not allow divers to focus on details and start to understand them. On the contrary, places such as Mallorca showed the suitable requirements to develop the cognitive domain in the diving activity at all levels.

*'The waters of Mallorca are more insipid, plain…. but at the same time when you watch something, you follow it easily*', was pointed out by local experienced diver (MD140716 (2)).

As a conclusion, to highlight that, this described scenario opens a possibility to improve the diving performance through proper adaptation of the diving language, improved by the Ocean literacy.

### *4.5.3. Actions for the Ocean*

#### *Normative domain*

The '*Diving industry goes straightaway to an iceberg as the Titanic destiny'*. So Robert Stewart's intervention was categorical in the Ocean Summit of 2015 (Stewart, 2015). This award-winning biologist and activist, author of *Sharkwater*, urged that businesses have to respect the Ocean if not, their future will be short. However, the fieldwork discovered that

the diving activity in Mallorca didn't feel this pressing responsibility, despite the decline of water quality, so commented by divers.

This ambiguous situation requires a reflection about how the marine realm is perceived. Based on the assumption of the 'land lens', explained above, the interpretation of the underwater world is conducted through the senses of the spectator. The first one and the most important one is usually the sight.

*'Nature is beauty to eyes'* was stated during an experience (MC140616 (3)). It is the main sense underwater as water decimates the senses of the smell, touch, taste, and hearing. For that reason, it is understandable that the human footprints down there are more difficult to perceive. That is the case of chemical pollution which can be smelled and tasted overwater but, conversely it cannot be done underwater, although the bleaching in corals is a visual indicator of the change in chemistry (acidification). What this means is that this limitation can be amplified by the dearth of proper knowledge. On the other hand, the gradual raising of the temperature cannot be felt in a couple of dives. It only can be identified by local divers who have known the dive spot for a long time. The overwater 'aerial' world is noisy and the acoustic pollution is easily recognised. As a result, there is a popular notion that the marine realm is more pure, more pristine.

> *'The sea is like a temple because the land is clearly damaged. The land is urbanized/ humanised; but instead, you cannot see these human constructions in the sea',* was described by diver of baptism (PB100916 (1))

Apparently, the absence of human structures makes the marine realm seems less polluted than over land. As was explained above, the society reads the marine environment with a 'land' lens. The lack of formal knowledge contributes to build up a 'romantic image' of marine surroundings, more similar to a paradise without conflict where everything is in harmony as was described by divers during the multiple interviews. However, that idealistic image was broken abruptly when the rubbish (particular plastics) appeared in front of them, as was regretted by some.

> *'I'm able to see tins, plastics and how empty is this place. This is because the mooring over everywhere has destroyed the place',* shared by a German student of open water (MC170616 (5)).

By way of the invasion of plastics in the shorelines, marine pollution is starting to arise on the society agenda.

> *'When you are down there, the rubbish doesn't match this place. It is more aggressive for your eyes, so you pick them up.'*

This is when the ideal image breaks down and impacts on the diver's satisfaction negatively. The divers develop a vast personal record of the marine transformation.

> *'The sea is dead… and it is a quite sad. I didn't see too much in comparison to Greece or other places in The Med',* a marine engineer expressed (MD070616 (1)).

They are aware that something structural is happening because they have to dive deeper to have wildlife encounters. The industry knows it, and the scientific studies support that shift due to macro drivers such as the Climate Crisis which moves species to migrate to deeper water. The divers are therefore privileged witnesses of sea changes. They have the opportunity to go down and 'see' the Ocean again and again. However, the satisfaction of the diving experience could be impacted on by the frustration or ignorance about the changes of the Ocean such as the disappearance of iconic species.

However, regarding this situation, the staff in charge revealed their concern about the impact of these realistic messages on the diving experience.

> *'If they say that here there are not more fish anymore, some of divers would change their mind and decide not to book the diving trip',* a German advanced diver confessed (PD240616 (4)).

However, as was shown above, the hopelessness of the marine scenario is already here. In addition, some staff members pointed out that,

> '*talking about the current environmental situation is a sensitive topic because the clients could feel that you are scolding them'*, was explained by a German instructor (PI180816).

Indeed, some divers shared that people also don't like to be educated during their holidays. For that reason, environmental communication has a challenge to approach the public in a more sustainable way. One option could be by way of the sense of belonging (emotional domain) and being part of a group as was commented on during the conversations.

*'Thanks to diving I saw how it is. I meant, apparently this part of the Island is one of the best part related to the sea beds; but it's empty. So they should do something to recover this marine natural heritage in order to be proud of it. I hope we'll witness of the positive turn!',* was shared by an advanced diver *(*SC090816 (2)).

This means that the emotional domain is affected by the disruption in the marine realm. This effect can trigger the awareness of consequences of human actions overwater and develop the feelings of responsibility (Ballantyne et al., 2011). A local experienced diver transmitted these feelings;

*'With the diving I reach to love the Ocean. When you see how we are destroying, the rebel feelings are growing into you. I'm going to fight for you'* (MD110616 (3)).

Regarding taking action, the diving activity itself was quite well policed with respectful messages such as '*don't touch, we are only observers'.* However, the field work supported that, as a general conclusion, the environmental message leaked during the diving experience in unstructured way and was very dependent on the particular instructor.

*'Because of my instructor, I'm not going to eat tuna anymore',* was claimed after the advanced course. This indicated how the 'conservation and scientific world' is losing this opportunity/channel to reveal the current situation of our Ocean. The veteran divers shared that their feeling was that the new diver is more aware of the marine situation, but at the same time, they noticed that the number of divers had increased dramatically, being themselves one of the biggest impacts on the marine ecosystem. For that reason, one of them was critical;

*'If you don't protect the Ocean, you lose your leisure place. We have an ethical responsibility to the next generations. If we knew and we didn't do anything to stop it',* British newbie diver (MC070616).

The question was if this experience can be translated to an environmentally responsible behaviour or ocean support. In this sense, the interviewed divers (staff and clients) considered themselves 'eco-friendly' because they recycled. Clearly this is a very limited action towards the sustainability transition. This answer in unison can be explained as the rubbish is in everywhere, including the sea. Furthermore these comments about their self - green image were mainly defined by ERB related to the land impact, but rarely transferred to the blue space.

'*I'm recycling but I don't know if I'm doing something for the Ocean*' was an often comment among divers.

Apparently, the success of the recycling habit is more an instruction than a reflection. Despite this, some divers made some changes in their behaviour such as ridding of exfoliates (microplastics) from their lives. Others had developed the empathy for the Ocean, being more respectful because everything is linked according to them.

*'The Ocean is the essence of Earth*'. *'Think and Act'* is commented by a student of open water (MC140716 (1)).

But most of them confessed that they are passive activists, assuming the responsibility to speak for the Ocean, spreading the word via social media;

*'I try to help the Ocean, sharing info in Facebook or other social media network',* was shared by local diver (MD110616 (3)).

On the other hand, some divers expressed the desire to know more about good behaviours and interactions with wildlife and *'reasons why I don't have to disturb or touch them*'.

*'I try not to harm it but now, I would like to know how to help it',* a local timber producer shared (MC170616(1)).

In other words, he proposes the development of a teleological code where the recommendations are justified by their consequences. This type of code, defended by experts because of its rationality (Cole, 2007), exposes the consequence for non-compliance (Garrod & Fennell, 2004). As a result, it becomes a suitable 'education' tool.

*'When you discover that the Ocean is the main producer of oxygen, change your concept because you are not going to destroy what is helping you survive',* was stated by an British beginner diver (PC210716(6)).

In this sense, ironically, the answer to 'what is the Ocean giving to you?' in the field work, was approached mostly through spiritual and cultural wellbeing services. People are not used to think of the Ocean as a service provider, with the exception perhaps of a food and water supplier. The supporting and regulating services were also nearly absent in respondents narratives. More detail about this scheme refers to Fig.n.2 (chapter 2). The conclusion was that the lack of proper reflection about environmental services was the ground for this poor environmental responsible commitment.

In conclusion, the diving experience in Mallorca can be classified as nature-based tourism but according to the classification of Weaver (2001), the activity still occurs in the soft ecotourism market (see figure n.9). The random environmental awareness in its structure sets it in this niche. There was not a code of conduct related to the island diving sector. As a result, the eco-friendly performance depended on the philosophy of the specific diving centre or instructor. On the other hand, the limited interpretation service placed it in this soft version (TIES, 2017; Weaver, 2001). Equally, the sense of place was not visible in their diving offers. The interaction with the host community in order to introduce the local narrative is another foundation of ecotourism (Robinson, & Picard, 2011; Ceballos-Lascurain, 1998). However, the diving trip in Mallorca was more leisure-oriented than knowledge-oriented trip related with the Mediterranean (edutainment experience) and lacking in this respect.

The next chapter collects the challenges identified to lay the foundation of the development of the Ocean Literacy and citizenship approach within the framework of underwater tourism in Mallorca. Each stakeholder involved in the enjoyment of the blue space is analysed and invited to shape a place-based recreational diving.

# Chapter 5. What is the tourism stakeholder framework for developing an effective Ocean Literacy strategy?

The advocate and co-founder of 'Blue the Dive', Vicki Nichols Goldstein, points out (2015) that the challenge for stakeholders requires us to put aside personal interest and work together. The blue stakeholders have to work on 'the same boat', sharing information and lessons learnt. In this vein, Hall already described in a review about the ocean and coastal tourism (2001) that the chaotic governance of the on-offshore strip is the result of a long misinterpretation/disinterest by authorities for decades. The management of the shore has followed particular interests within blurry administrative limits. Consequently, the overlap of competences by governmental bodies (Hall, 2001) has been usual and the reason for confusion among users. At present, the situation has not changed enough to guarantee a better supervision as the study of McKinley & Fletcher (2010) highlights and it was confirmed by this research in Mallorca.

At the regional level, the European Union has developed a strong stream related to the Blue growth (Green Bubbles Rise Consortium, 2014). However, locally, the knowledge generated by these intergovernmental programs has not reached the policymakers. The short-term activities are still the priority within coastal management, although it means to affect long-term resources. Facing the environmental crisis requires a long-term mentality by society. The outcomes of most of the interventions will be reflected in next generations. However, society is guided by the short-term mindset and hence, the governmental support follows the same strategy of quick outcomes. This mind-set context forces us to develop an approach which emphasises the long-term dynamics of Nature through a proper literacy and equally being able to get generationally feasible results to involve citizens. In this participative interpretation, the stakeholders must be involved to give approaches aside from exclusively the conservation one (Hammerton, 2014) which has prevailed for a long time. This chapter examines each stakeholder of tourism spectrum regarding its current support for the diving activity in Mallorca, together with suggestions emerging during the fieldwork to move forward to that ideal *'single boat'* as a map of relationships.

## 5.1 The governmental umbrella

### *Officers in action*

A public good like the Ocean is beyond the sole governance capacity for governments. Consequently, cooperative management needs to be redesigned, although the ultimate responsibility of marine issues must still lie in governmental hands (McKinley & Fletcher, 2010). Diving activity is conducted in a natural setting like the local seas; consequently, the government must be the umbrella stakeholder for the entire industry. However, there was a shared opinion across the diving operators that the activity is misunderstood by the government. During the interviews with managers, the confusing legal situation was identified as the main reason. In addition, elements such as inappropriate category in the labour framework; constant change of the regional department in charge; and restricted training law described this situation. As a result, a local manager concluded,

*'no department wants to host the diving activity'* (PM210516).

During the season 2016, the diving belonged to the General Director of Port and Airport. This 'location' can be explained due to the fact that for a long time, the Ocean has been mostly considered as a way of communication. Similarly, the interviews with staff confirmed this popular meaning. As an instructor reminded us,

*'We need it because it is a powerful transport system'* (MI160616).

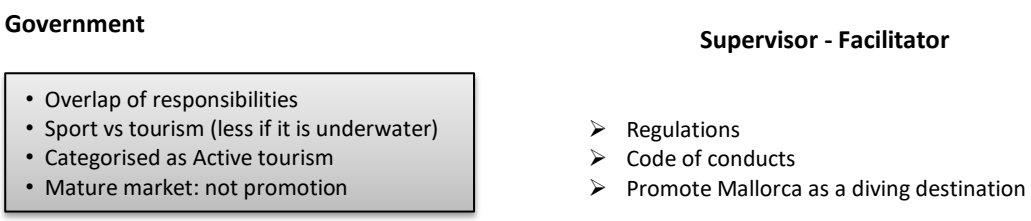
The authorities must share this main meaning because the department in charge of marine affairs usually is focused on maritime topics, particularly management of ports. However, in this legal context, the interviewed managers stated that the tourism has limited relevance.

The department of tourism was a regional competence (The Balearic Islands) until 2018 when that competence was transferred to each island. This meant that Mallorca did not have its own tourism department and the tourism strategy was not exclusive. At the local level, the fieldwork noted that that the structure is more disconcerting. When the interviews with the council's officers tried to talk about the marine ecotourism, the organizational framework didn't allow it. The council has the responsibilities divided between the environment department for land issues; and the harbour department for marine issues. As a result, everything related to the diving logistic is managed by officers focused on the shore.

The paperwork for the mooring of the boat and other technical requirements are the job of this department. Therefore, the health of the marine ecosystem is not a responsibility of the local authority. Only the marine reserves have clear responsible department which belongs to the regional government if the waters are under the Balearic stewardship (North, South and East) or to the national administration when the location is in the West waters of the island.

Consequently, the communication channel with the diving centres cannot be fluent as was often reiterated by staff. All managers highlighted that they only heard from government for regulations and standards (with the exception of some personal contacts with the marine reserves officers but without significant impact on the entire framework). Therefore it can be assumed that the Ocean is rarely seen by the economy as a living ecosystem. Hence, at present, the marine realm requires that these officers assume a more active role in the transferring between sectors. The marine officers are the ground level of government which support the daily task in the sea, consequently, their knowledge of the area such as environmental impacts or management could be an interesting contribution. In this sense, this study took part in an event of cleaning the sea bed of fishing lines in the marine reserve of El Toro supported by these officers. These events must continue as facilitators of the scientific and social projects in the local seas, but with better training. These officers come from forestry scheme which requires an update of marine knowledge in order to turn them into information collectors and providers (including the social perceptions of the sea). As a result, the consulted managers agreed that the design of local code of conduct can be developed, defended, and shared by the entire industry with the government support. In this way, the government can be shown as the supervisor and facilitator of this shared marine literacy (Figure. n.46).

Figure n. 46: The shift from passive to the active role by government.



This local labour by the marine officers has to be aligned with wider strategy. The delivery of the message through campaigns can be a significant reinforcement. Gössling & Buckley (2016) explain in their study about persuasive communication how people are involved. These studies suggest that a communication of campaign type, addressed to local target, can be an alternative approach to modify entrenched behaviours such as apathy for the sea. The current approach is referred to social-normative approach. The community marks the social norms which largely define the behaviour. In this sense, the campaign related to the protection of the Posidonia meadows (Figure n. 47) can be the foundation to the messages in the diving experience. The current campaign of plastic reduction across Europe can contribute to break old behaviours related to consumption. All of them use the message of the community power to make deep and sustainable changes. Therefore, this recent governmental effort is based on appropriate material and social context to facilitate the commitment of diving centres to the blue society.

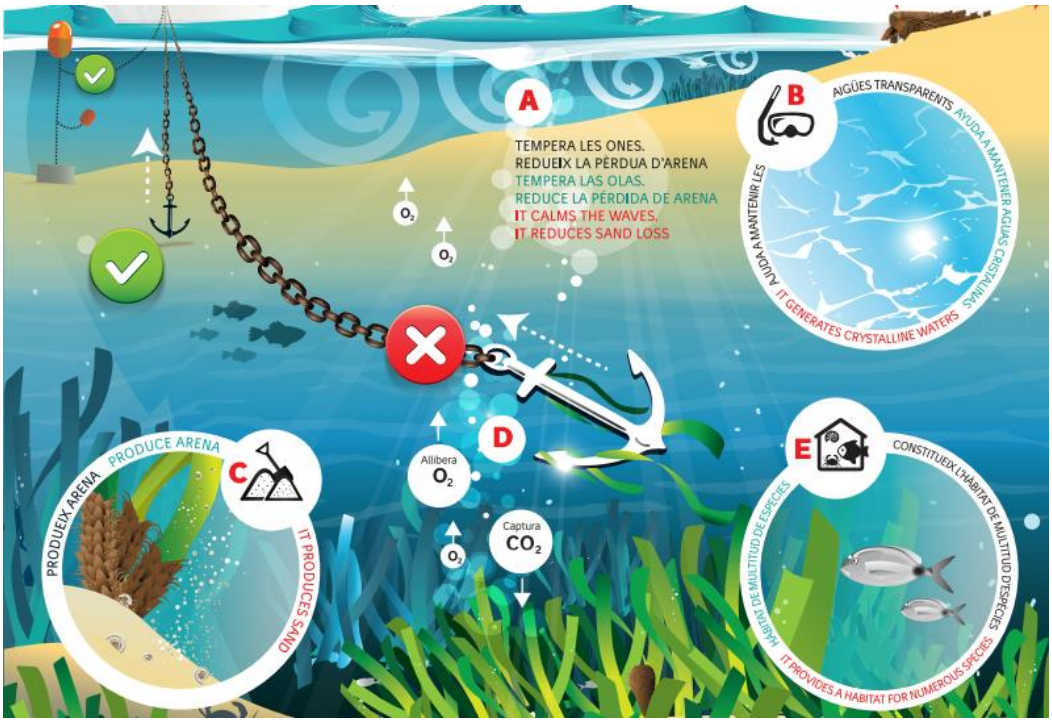


Figure n. 47: Campaign of Conselleria Medi Ambient, Agricultura I Pesca, Balearic Islands, 2018

As the main guarantor, the authorities have to work with a holistic view. At present, this is translated into the development of the notion of blue society with their multiple uses and interest in the marine realm. A large part of society is settled on the coast, defined by the local seas, therefore, the social perception of the ocean must be part of this new 'official'

relationship with the ocean. Their stewardship and type of management related to the marine realm are the decisive factors for the marine activities such as the diving performance. Better understanding must mean a clarification of the governmental labyrinthine competences related to the seawater column. However, the current legal scenario confirms that the governmental structure has not been updated with the tourism dynamic in which diving activity is involved. This out-dated vision also impacts on the destination management of the government.

In 2017, tourism responsibility was moved from the direction of ports and airports to the insular department of territory and transport. As a result, the tourism department only takes over the marketing of diving within the benchmarking of Mallorca. This unsteady governmental role is understood as indifferent behaviour. This 'reading' of the government support was confirmed by all of consulted staff,

> *'We feel orphans in regard of government. When we go to the international events we are alone',* manager of a network of diving centres annotated.

The consequences of this lack of governmental support are understood as a loss of presence in the international fairs. According to the diving industry, the tourism trade fairs are one of the main sources of clients. However, in the international tourism fairs, Mallorca does not show its diving resources, as the professional associations point out. The strong tourism perception about the island still remains in the formula of 'sun and sand'.

> *'In the Birmingham diving show, people asked about the best beaches but nothing related to diving',* officer of the tourism information centre in Palma shared during an informal visit.

To reverse this situation, the managers commented that a longstanding demand of the diving industry is more government involvement in their marketing efforts, particularly at international level. During the interview with the governmental officers, the diving activity was considered as active and adventure tourism within the government tourism strategy. This governmental labelling promotes a modernist vision of the activity where the 'active' characteristic as water sport is the only approach. According to the classification based on Recreation Experience References scale (Manfredo et. al, 1996), this group expects to obtain excitement or develop new skills or abilities among others (Factor 1 -novelty-self-development). However, in Mallorca the divers were identified by managers as the walk-in

tourists within the ‘sun and sand’ destination. This means a wide spectrum of motivations to dive as was described above. Consequently, the governmental categorisation should be reviewed to embrace these new target markets. In this connection, casual conversations with the officials in charge showed predisposition to include the diving activity in the nature tourism strategy due to the success of marine reserves, as its website reflects. However, this would also remain a narrow focus of dive markets where the blue humanities were not again included.

Equally, the authorities argued that this unique niche came from the understanding that diving had reached a mature market; therefore, the diving was not a priority in the marketing agenda. This strategy was confirmed by the manager who explained that the Government was driving tourism related to golf, biking, and Nordic walking at that moment. This information was confirmed by the official website of Mallorca (Infomallorca.net, 2017). Similarly, the lack of diving information was revealed in the official tourism offices in Mallorca through onsite visits during the fieldwork.

The fieldwork verified that the distribution of diving centres brochures is random in relation to other local touristic attractions (e.g: Traumontana train). The government considered this as a consequence of the seasonality of sector as was manifested by a council's offer. The economic argument is also another main reason for the low governmental support to the diving industry according to some staff.

> *'The diving is not a profitable activity. We survive but not earning a lot of money'* was confessed by local manager and president of one of diving associations.

This manager explained that two years ago the industry started to get over from financial crisis. However, the inner characteristics of the activity don’t allow much better performance. According to another local manager,

> *'In Mallorca, the season is short, only three months according to the managers. Only two or three centres can keep open the entire year.*' (PM210516).

However several other Mediterranean destinations have successfully developed scuba diving as an off-season activity, still being much warmer than Northern European locations. Malta in particular, for example, has developed wreck diving in the shoulder and off seasons.

In conclusion, the government has to assume major commitment in the destination management within the diving system. The managers commented frequently that the activity must be included in the official guide about Mallorca with simple actions such as a map with diving regions, their resources and offers. This could be a good first step, followed by a wide distribution as the managers insisted. This is an example to show that small actions can make a significant impact. In this sense, a part of the sector is involved in a debate about the purpose of the extra promotion: increasing the number of tourists versus specific type of tourists. About this, there are different opinions depended on the success of their diving centres. One experienced manager suggested that,

> *' the diving industry requires a smart twist in the marketing strategy in the Island. Quality over quantity, with tourism platforms for hikers, food lovers and culture explorers'* (MM210916).

This is a consequence of current tourism situation in Mallorca. The entire island is involved in controversial debate about the next direction to minimize the impacts of tourism which have begun to mean a social conflict. Therefore, some diving centres wants to attract economic high profile tourists to avoid the mass through business liaisons of high quality services such as signature cuisine of seafood (Figure n.48).


Words game: 'Come from the Sea. Signature cuisine. '
Figure n. 48: Advertising material in a diving centre, Mallorca, season 2016.

Following this line of thought, but through the Ocean Literacy, innovation could address the notion of *'Explorers of the Mediterranean Sea'* with storylines such as the richness of the Cultural Landscape of Tramontane (World Heritage category) which follows through a seascape full of enigmas and gazes to share (Figure n.49). This suggestion was result of interviews with staff.

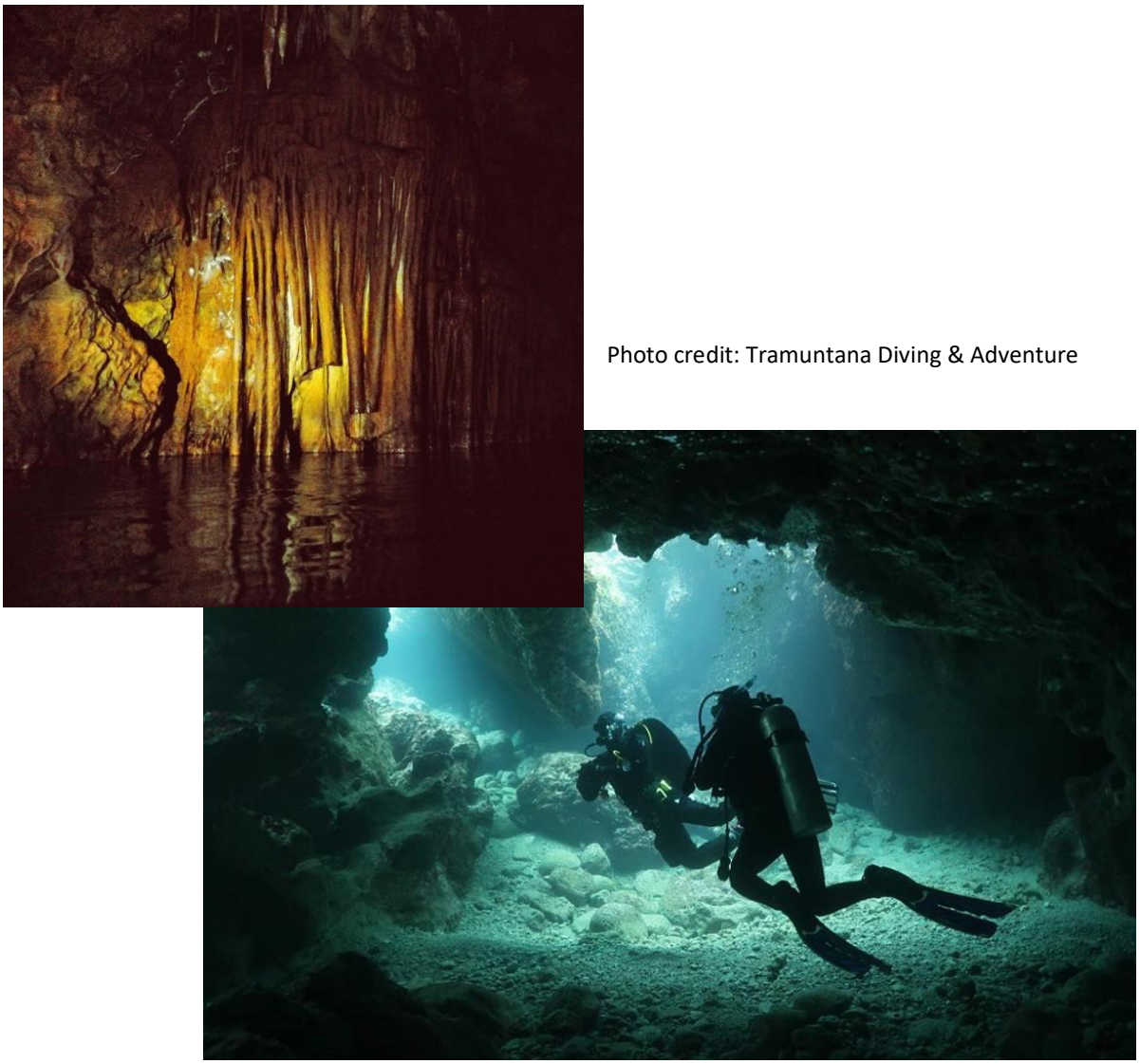


Photo credit: Tramuntana Diving & Adventure

Figure n. 49: Diving in the Tramontane

To sum up, the authorities need to comprehend the fourth dimensions of the sea and the increasing role for society. The regulations for the industry have to evolve with the notion of blue society but with the cooperation of the professional associations. This joint work can be the foundation to design the image of Mallorca as diving destination. The marine resources (tangible and intangible) and best practices must be the paint brushes for that picture. However, the government must become the facilitator of the conditions to accomplish that future.

## 5.2. Professional association

### *Shared objectives*

The business organizations have the duty to support the diving activity on the island (fig.n.50). They must work with diving centres and improve their labour conditions and their position on the island. The professional association is the official voice of the industry and must contribute the development of regulations and protocols which include the industry needs. However, the industry was not united in Mallorca. The general perception of sector was that its insular professional association is nearly inactive. According to diving centres, the work of the main professional association (approximately 25 members) was defined by personal issues and private interests. Despite this, the opposition against the educational law that hampered ability to work - to give the control of the activity back into national hands - was led by this association. However, in general, it was noted that the association did not contribute to the integration of the sector, nor to the development of the shared marketing strategies to overseas markets (their main target markets). As a result, the activity did not count on a joint voice. Though it was recognized for its importance, amongst managers, membership was considered only to get a discount for the hyperbaric chamber.

> *'Every year I think about quitting but, honestly, we need it because of the hyperbaric chamber, that's all'*, confessed a local manager (PM210516).

In addition, in Mallorca there were other diving associations which work as clusters such as German diving centres or business networks to facilitate the diving by way of discounts or bonuses. Consequently, it was commonly agreed that the passive role of the main professional association needed to be reverted to a more active one.

To begin, the lack of official figures about the diving in the island had to be solved. In the absence of government control, the professional association usually must assume this type of role. In Mallorca, only the diving centres which dive in marine reserves counted the number of divers as requirement for the permission. Meanwhile, the remainder of diving centres just sent their financial figures for taxes. The president of the main professional association confirmed that no institution collects and gathers these figures. As a consequence, the significance of the activity within the economic context and tourism

scenario in particular cannot be shown to key stakeholders. This condemns diving to a weak role in any conflict with other sectors. For example, when there were some issues with other coastal waters' users, such as yachts or party boats, the lack of awareness of diving requirements provokes clashes between protocols. In this regard, the fieldwork was witness to some risky situations because of lack of knowledge of rental boats. However, according to the managers, concerning these issues, some local governments showed preference for these other water activities.

> *'There are a lot of problems with renting boats because they usually don't know the diving signs and don't respect the security space. But we know that if we try to claim with the authorities, we'll lose',* as protested a local manager (PM210516)

The ideal situation should be that any requests from the industry are managed by the professional association to strengthen the activity in the legal context of the island in order to show the activity as a cluster.

Another critical example was the marine reserves. Fishing and scientific research were more important than diving in these special zones. Indeed, the marine reserves were designed to manage fishing (open for four to six months per year). The main benefit was to get more abundance of species with healthy ecological size. For that reason, the best diving usually occurred in these protected waters. However, the benefit for the dive industry was just a '*side effect'*, rather than being considered an important economic contribution.

This scenario put the stress on the diving centres, as proactive players in the future of the sector in Mallorca. Therefore, to re-adjust the industry to these new times, the volume of the activity data should be considered. Equally, the association should produce statistics every season in order to build a database about the diving profile in the island. In this connection, another key challenge of the association could be resolved: the promotion of Mallorca as a diving destination to different diving market niches. However, to achieve this general goal, the association has to be involved in the training program, as was demanded constantly during the interviews. The organization of local courses could be part of its commitment, becoming the leader in the knowledge transfer between other stakeholders and the centres. It would become the reference point for the local marine literacy (Ocean literacy & citizenship) for the diving centres. Consequently, the professional association

would play mostly a role of 'supporter' with special attention towards training and promotion.

Figure n. 50: The shift from passive to the active role by professional association


## 5.3 Social organizations

### *Community commitment*

The social and conservation organisations are one piece of this puzzle. They are the intermediaries between the information production and society in order to facilitate the comprehension of socio-environmental dynamics. Taking into account the inarguable degradation of the Ocean, the conservation world needs to spread the word to the marine sectors widely in order to embrace their actors/users in the marine protection. Mallorca is soaked in plastic waves every summer, as was lamented by interviewees and was observed during the 2016 season. As the divers are direct users of the sea, they can be considered as informal speakers about this environmental crisis as was reiterated by some divers during the interviews. However, despite this, conservation organisations do not continue a solid relationship with the diving activity. The insular NGO's focus mostly their marine activism on environmental issues related to the over-exploited coast; the cleaning of beaches; and overfishing campaigns. The chemistry and plastic pollution of the marine waters is considered as consequence of the over-populated coasts, therefore the activism efforts were addressed to the shore. A significant exception by social organizations was the actions related to the situation of the Posidonia - a decisive ecosystem for the diving activity in the island – (fig n. 51).


Figure n. 51: Posidonia Festival, Mallorca, 2016

The main player in Mallorca was the Balearic Ornithological Group (GOB) which was founded as ornithology group in order to build the ornithological knowledge in the archipelago. But soon its functions were developed to Nature protection in general, becoming a strong reference in the Island in everything which is related to environmental protection. Nowadays, due to the increasing socio-environmental issues because of the tourism development, this niche has been filled with the multiple community groups which have emerged to defend their wellbeing. In this public interest, the health of the sea is included.


Figure n. 52: El Toro cleaning organized by Ondine (environmental organization). Mallorca, 2016.

Regarding these collaborations, the study was witness to community action led by a conservation organization with the collaboration of diving centres and the support of marine reserve officers to clean up the sea beds of El Toro reserve (fig.n.52). This is a good example demonstrating how both sectors could work together for a mutual benefit. The diving

activity, for its part, did not need to make any extra effort to attract more clients, but it does need a flourishing marine realm for long term viability. Furthermore, this cooperation must include the political lobbies as was stated during the interview with the GOB officer,

> *'we could be the speaker of the diving activity in the environmental boards in some council '* (GOB, personal comment).

This stakeholder has the objective to put pressure on responsible actors for ocean citizenship at different levels. As a result of their lobbying for example, the environmental problems of the Posidonia meadows are receiving the special attention from society (fig.n.53).


Figure n. 53: The Posidonia flag recently developed in Mallorca to commit boats to the protection of these subaquatic meadows, (GOB, 2018).

As final contributor to this social network, the Aquarium was also included an experienced educator in the island. As well as hosting large numbers of tourists, its programs, addressed to local schools meant significant part of marine education in the formal system.

> *'Our scope reaches around 15.000 students per year'*, in words of its officer in charge.


Likewise, they commented on some campaigns, of which its campaign of *'save the red tuna*' made them feel more proud because of its impact on the conservation efforts in the region (fig.n. 54).

The main message: *Mum, how did the red tuna taste?*

Figure n. 54: Red tuna protection campaign. Palma Aquarium, Mallorca, 2016

But regarding the diving sector, it was not considered a strategic sector for their programs. This is again in contrast to other destinations which have developed aquaria and dive training facilities in tandem, for example in Qawra, Malta. In Mallorca, as information source, the Aquarium was clear in this term,

> *'the knowledge from the diving sector is not enough rigorous to be considered a reliable source'.*

In addition, the lack of active professional association made more difficult to develop a beneficial relationship.

> *'It is difficult to work with the sector when there is not a unique voice'*, the officer confessed.

Another barrier pointed out was the mixed profile of staff in the dive centres: multicultural and with high mobility as result of the seasonality. However, their relationship could evolve in more sustainable way. They confirmed that they had the institutional structure and staff to train the diving sector in knowledge of Mediterranean Sea.

To sum up, the social organizations have the capacity to provide understandable messages, and channels to participation which could be used by the diving industry to implement the ocean literacy approach. They are another translator but with their emphasis on the relationship with the human beings, encouraging actions in the eco-friendly direction (fig. n.55). The contribution to the code of conducts for the industry and set of marine-friendly practices for society can be the practical input. Their sources of information are usually

universities or other research institutions as was confirmed during their interviews. Taking into account that together with the Balearic University, Mallorca hosts a solid scientific network (see the next subsection 5.4). The role of bridge between experts and the general public has the power to make that raw information into relevant information to different targets. Therefore, their role as a creator of marine environmental messages is conclusive. Equally, its role as lobbyer is attractive to this new relationship between sectors. The challenge in this term is to include the wider meaning of the Ocean in their environmental commitments. In addition, as the Aquarium offered, they can be considered part of training system for the marine literacy.

Figure n. 55: The shift from passive to the active role by social organizations.

**Social organizations**

- Priority: Avoid the destruction of the coast
- Focused on maritime tourism

**Translator - Activism**

- Social link with the local marine ecosystem (critical issues)
- Good practice (tips)
- Codes of conduct

## 5.4 Scientific organisations

### *Decoders of the sea*


Figure n. 56: Outreach material in a Posidonia Festival, Mallorca, 2016

Mallorca hosts a multiplatform of Scientific and Technical Infrastructures (Spanish National Research Council -CSIC). Formed by the Balearic Oceanography Centre (COB-IEO); the Balearic Islands Coastal Observing and Forecasting System (SOCIB); the Mediterranean Institute for Advanced Studies (IMEDEA UIB-CSIC); with the contribution of governmental department (Conselleria), the regional marine science research is founded.

Title: '*Posidonia. The underwater forests*'

The IMEDEA is focused on biological and ecological studies; the COB-IEO, with one hundred years of history, is about the foundational studies of the Ocean; and SOCIB is the operational branch of this research triangle.

Their main challenge is to explain the reasons of the physical, chemical and biological parameters of the Ocean. For example their work is the base to understand the distribution of the Posidonia or the dynamics of the jellyfishes or algae. In their words;

*'the Mediterranean has high scientific interest as it is considered a small lab of one Ocean',* an officer responsible of outreach.

However, this effort does not currently reach the diving sector as was checked during the fieldwork. The diving script showed lack of scientific rigour and currency.

This was reflected in an interview with a trainee instructor (MT160616) in a diving centre of the study,

- *'How do you know that?*

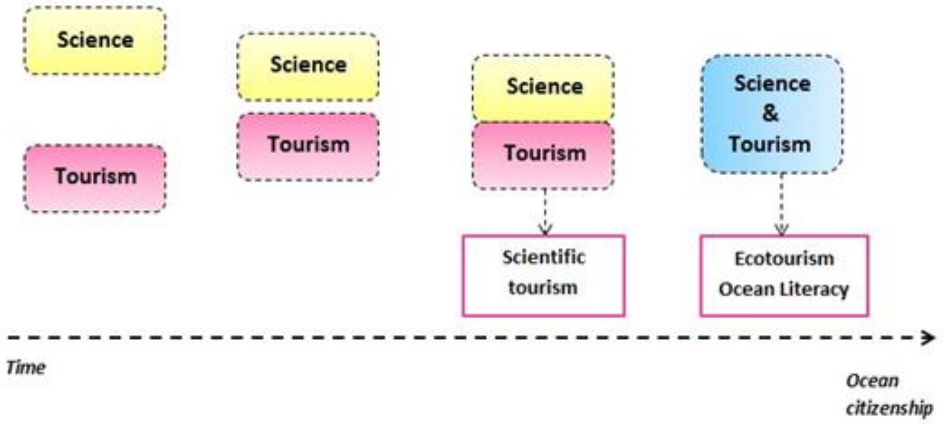
*Because other instructor -who are here longer than me- told me. We usually ask the veterans.*

- *And don't you prefer to check it in scientific websites?*

*no, what for? I trust them, they dive here, they know it'.*

The cognitive domain of the message must be based mostly on scientific knowledge (with the contribution of local wisdom). The relationship between tourism and science has developed from first steps with scientific tourism to the latest version including ocean literacy (Figure n.57). Scientific tourism is an option where the science is transferred to the tourism activity. It may be suggested that early scientific explorers were the first insight-seekers in tourism. In more modern volunteer tourism, the scientific script is adapted to these 'lay participants' but without real integration in the tourism dynamic; they are treated more like 'guests' in scientific trips than tourists. Earth watchers have traditionally represented this type of combination. Therefore, the next step in this direction of integration can comes from the Ocean Literacy approach which encourages integration of programs like Seawatchers through 'tourist' language, times, and activities. This results in themed diving where the integration is the keyword. The set of principles of Ocean Literacy can facilitate this integration.

Figure n. 57: The historical relationship between Science & Tourism



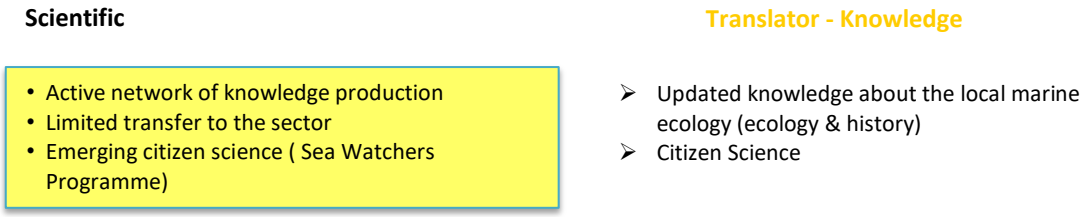

The incursion of the knowledge into the basic framework of diving increases the probability of feeling interested. Therefore, the first step is to consider diving activity as a target for their institutional diffusion objectives. In this sense, the scientific institutions consulted in Mallorca were aware of the importance of dissemination of the scientific knowledge, though, to date, the publishing in scientific magazines was still the main means of doing so. However, some of them channelled their efforts towards communication in social media. Likewise, all consulted institutions had staff designated to the outreach task with special attention to educational programs for the general public (particularly with a family education focus: teachers, children, and parents).

The interviewed scientific staff explained that the indirect approach usually was to make infographics or viewers (apps and 3D simulations). Meanwhile direct action was to carry out outreach activities such as Science Fairs in the University with parents and children; open days with families; competitions about telling stories and drawing; or photo competitions. A good example was the MedClik, an educational tool to outreach the scientific knowledge related to the physical dynamic of the Mediterranean conducted by SOCIB. Whilst this scientific institution kept certain contact with the maritime tourism through ports and sailing, the diving industry was not considered part of its educational target. As a result, their features were not seen as 'attractive' and easy to provide useful information to this tourism sector.

*'Uff! Too complicated, we don't have time for it',* a local instructor confessed (MI090516)

Similarly, it was suggested that the diving performance was not designed to review the scientific information and their updates in the social media or scientific magazines. Therefore, to contribute, the role of science must be more active as the translator of nature. With updated knowledge about the local sea from both ecology and humanities perspectives, and the proliferation of citizen science, science would be closer and more practical (being a reference) to society (Figure n.58).

Figure n. 58: The shift from passive to the active role by scientific institutions




In the same line of thought, citizen science can play this intermediate role. The citizen science is the platform to invite society to take part in the scientific goals. For example the 'Observadores del Mar' (SeaWatchers) was a watching program in the region; conducted along the year and managed by the Institute of Marine Science (ICM) in Barcelona and The Spanish National Research Council (CSIC) (Institut de Ciencies del Mar, 2017). They have developed 12 research projects, where 60 scientists are involved. These projects are about biodiversity, invasive species; jellyfish; impacts of Climate Change; and Marine litter. The IMEDEA was the focal point of the Sea Watcher program in Mallorca. The gain was that the divers got the updated information in return about what is happening in the sea as a feedback. Usually it required divers to take pictures of the required species with some basic geo-biological data in order to send them to the scientists. This program had as an objective the development of suitable material (Posters, slates of species and personal training) to be used by marine activities (Figure n. 59). This research study collaborated, as far as possible, in its dissemination in the diving centres. However, there were some critics in this type of scientific network because of its complex logistics.

> *'The required digital platform means high time consuming in being designed and keeping it updated. In addition, it is not clear that the message is reached to society. There are not too many successful precedents',* an officer responsible for outreach.


Figure n. 59: Posters of SeaWatchers in a diving centre, Mallorca, 2016

Indeed, some diving centres had participated in this type of science platform in the past but in an informal way and without promising results. The lack of consistency was the main reason to abandon the initiative according to some managers due to the fact that the communications with the scientists were not fluent. However, the diving activity still saw these programs as added value for their performance. The officer responsible in the IMEDEA suggested that the reproduction of Posidonia in May was a good example of it, where divers (locals particularly) can re-discover a diving resource which can become 'boring' for them. Placing value on these ecosystems or species through citizen science could offer a refreshing of the gaze in the same diving place.

The win-win situation could be reached by several ways such as institutional cooperation; business partnership and NGO's contribution. This citizen information can help update the data about the marine state. The contribution to these types of citizen initiatives can be remarkable for the scientific programs. At present, some scientific projects cover a vast territory, such as making distribution maps of biodiversity. To develop this, every help is good, for that reason the contribution of amateurs can mean a significant assistance in the monitoring task of science. In addition, these types of programs enrich the dialogue between experts and laypeople. In their words,

> *'we need all of the eyes which can find in order to register what it is going on underwater'* (Sea Watchers Programme officer of ICM).

Regarding the relationship with other stakeholders, the science, for their part, also provides marine scientific knowledge to the government for better management. Ecological facts, species relationships; key species; patterns and trends; and models of estimations are examples. As a consequence, the marine officers of marine reserves could also be part of this registration of invasive or exotic species; noting dramatic decreases (giant clam); and pollution emissions. Equally, the relationship with the non-governmental organizations could bring benefits in the socio-normative scope. Their design of socio-environmental messages can be strengthened and delivered to marine officers on the ground and staff of centres.

The study conducted a scientific talk in the IMEDEA where the scientific participants were asked about the main messages to the tourism (diving) sector (Figure n. 60);

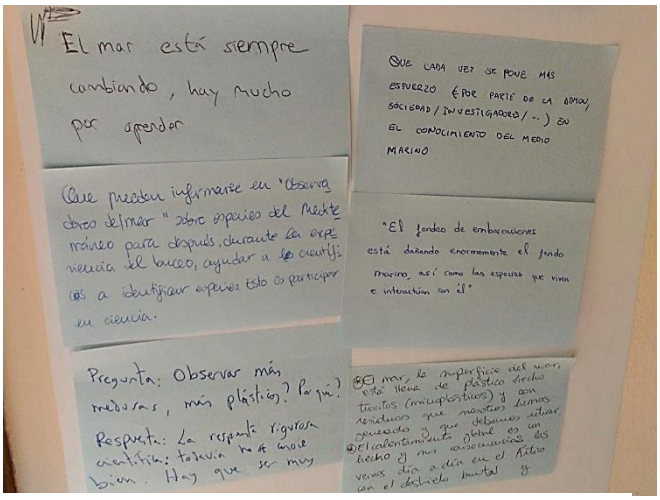



Figure n. 60: Source: Messages scientists in a workshop in IMEDEA, Mallorca, 2016

'*The Med is oligotrophic. It has few colours but great biodiversity*'

*'The anchoring of boats are destroying the sea beds, ergo its biodiversity'*

*'The sea is always changing; therefore there is still a lot of learning. We need more data and timing records. But society has to contribute not throwing rubbish to the sea'*

Likewise, economic sectors such as the fishing industry are one of the solid partners of marine science. The COB-EIO had designed a code of conduct in cooperation with the sector. An example could be mimicked to the diving sector in order to design a set of best practices with rigorous scientific knowledge. Therefore, it can be very helpful to routinely approach these experts to keep a dialogue with science.

In conclusion, the scientific world has the challenge to develop material for the co-users of their shared working environment, the sea. The development of a working relationship among the diving sector and scientific field is a critical factor for this approach. The communication/outreach/training channel for the information exchange should be the way to keep both 'worlds' connected. To achieve this aim, the scientific institutions have to

assign outreach professionals as translators/facilitators and consider diving as a target for their educational efforts in order to get the marine literacy goal in that sector. With this more suitable scientific ground, the diving sector, in its turn, has to promote the appreciation of those scientific discoveries in their performance.

## 5.5 Map of relationships

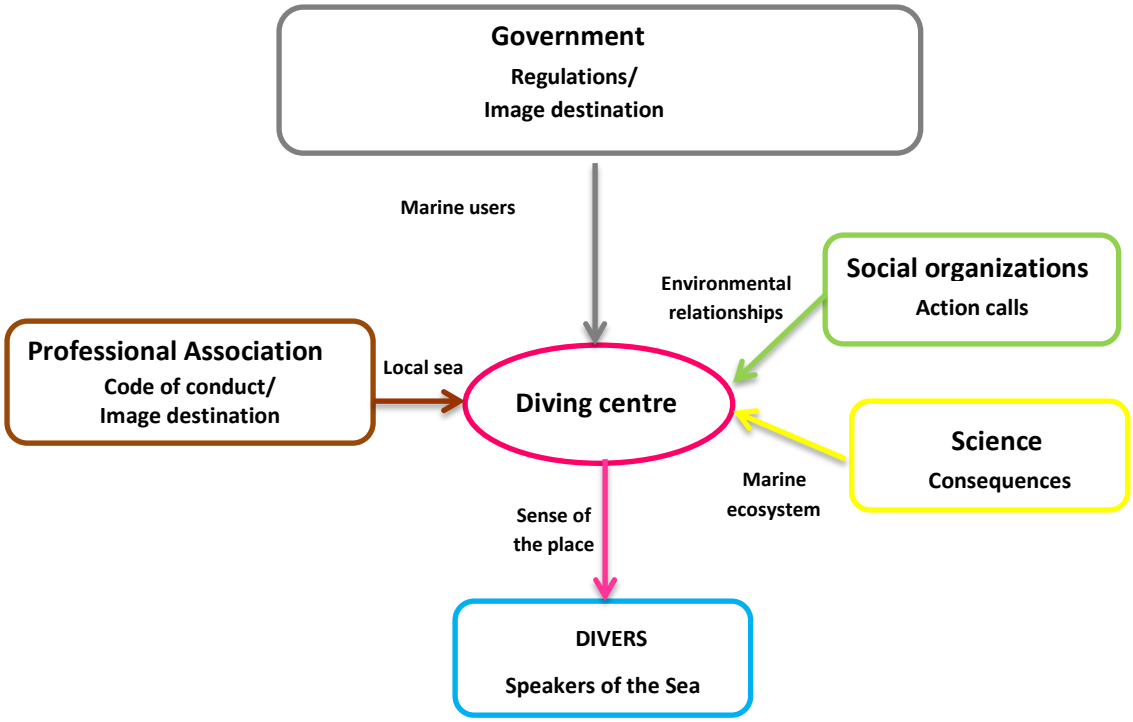
### *Stakeholders*

'Fragata Baleares' is the name of ship which the diving industry in the island wanted sink on the shore in order to create an artificial reef. The director of the biggest professional association of diving took the project as the flagship of a new era for diving activity in Mallorca. The activity compared itself with the same sector in Malta, another Mediterranean island which is a popular diving destination in the region because of wrecked ships. Therefore, for Mallorca, this development meant a strong push in the competition of the region; and extra benefits to conservation due to the limitation of fishing and creation of an artificial reef according their advocates. Despite this, there was a strong opposition by environmental sector and finally, the project was cancelled. In conclusion, the industry worked together but without exploring innovative approaches in order to improve the insular position in the market. In this 'copy & paste' strategy the Ocean Literacy would give a refreshing approach competes in the Mediterranean region. Diving in the mythic Mare Nostrum, home of enigmatic sea creatures; and waters which were witnesses of pirate raids such as Dragut, lieutenant of Red Beard could be the narrative, as was conceived after hours with the managers.

This is an example of one missing opportunity. As has been suggested along the chapter the potential of this shift remains in the island. It only is matter of the creation of connections; partnerships and mutually beneficial business. To that end, the entire structure has to be involved in the shift from passive observation to active observation, with a special focus towards the insight-seekers over the species-seekers. This challenge entails the proactive role of stakeholders described for this approach in each section of this chapter. Furthermore, this means the development and transfer of this knowledge is the joint task of the entire structure (Fig. n.61). Consequently, the knowledge of a resource should started to be built by talking to people with experience at a site (Bacher et al., 2007) such as senior

staff; researchers or local activists. This would allow the most important elements to be identified; and the divers to become the voice.

Figure n. 61: The diving structure for messages transfer




To begin the government has to play the umbrella role to flourish the activity through the active staff which watch and spread the sea regulations; and contribute the development of the destination image with the multiple meanings from the marine users. Secondly, a united profession which works as one voice to improve a community still committed with their surroundings, being the driver of the changes. Its unfinished task is to design a code of conduct for the entire sector and to be part of the improvement of that destination (local sea) image. The other supporters are the science to set the knowledge foundations about the marine ecosystem and their socio-cultural bonds; and the social organizations which call to the action through the environmental awareness. This framework will build the sense of that sea which will be spread by the diver as their speaker. The next step is to reflect that framework in the design of a diving trip with place-based literacy. This is the purpose of the following chapter which assumes the commitment to capture all of findings and suggestions to that end. Consequently, the resulting model is a together effort with the diving centres of the study to show the path towards the Ocean Literacy and citizenship approach.

# Chapter 6. How should an underwater marine ecotourism product develop the Ocean Literacy approach?

This research study was born with the idea to improve the dialogue between academic expertise and practice on the ground. As a result, this chapter has the purpose to present a model for the integration of Ocean Literacy (with the spirit of ocean citizenship) into underwater marine ecotourism. It is a model which evolved thanks to the emergent suggestions developed in Mallorca during the summer of 2016. The recommendations take into account the daily routine of the activity, its potential and its limitations as observed over six months of fieldwork.

A core basis of the model is that the diving centre is strengthened with the re design of diving experience itself; the redefinition of staff profiles and roles; and the provision of ad hoc training to include marine literacy. Taking into account that the main target of this approach is the ocean stories-seekers, the entire structure needs to be driven by an innovative impulse based on the diving place. To that end, this model is presented as a strategy to transform divers from being passive to active observers during the diving experience.

As was promoted by the entire study, the approach of this model is shaped by the three domains - emotional, cognitive and normative - to connect the diver with the local sea (Fig.n.26). The experience of the diving industry in Mallorca has generated valuable lessons in this regard such as: the feelings matters in every dive; understandings gained through active observation are the most significant; and the social norms of divers impact the diving experience.

In recognition of the commitment by the centres involved in the study, the that scheme is enriched with the interpretative program called the 'Blue Brick Road' to show the feasibility of the model, including a set of practical suggestions inserted in the text (blue boxes) as examples. This toolkit is illustrated through four different grades of implementation that

may suit different levels of commitment from the dive centres but will gradually improve Ocean Literacy understanding.

## 6.1 Diving centres as promoters of Ocean literacy & citizenship

The present model lays on emphasis in the diving centres as core of the structure of the entire activity. They facilitate a form of active entertainment where the discovery of marine world is the product. Thus, this approach (Ocean Literary & citizenship) needs that the diving centre have to be the marine knowledge reference for divers and are ultimately responsible for the creation of the diving message.

The general approach of dive centres in Mallorca, highlighted by the consulted managers, is to attract novice divers to go to the island to learn diving in safe waters. As such, it could be promoted that once they have travelled to the most popular diving spots to satisfy the thirst for stunning wildlife encounters, divers could return to Mallorca to learn again another way to experience the marine realm, micro-diving with Ocean Literacy & citizenship. At the same time, it should be showcased as a place to maintain the dialogues with the current Mediterranean for local divers.

To achieve this, the diving centres have to develop their own specific offers and the business philosophy, so the type of management will be critical to success. Managers with the vision to use the diving activity as a path for other interests (e.g, citizen science (fig.n.62); history; scientific diving or environmental commitment) are suitable for the Ocean Literacy approach.


Figure n. 62: Diving centre with certificate of Sea Watching Sentinel

Some diving centres have, on an ad hoc basis, already combined diving with other objectives, particularly with science. Notwithstanding logistical challenges, the responsible

managers agree that being a part of the 'marine community' and contributing to the worthy cause give another tenor to the diving experience.

### *6.1.1 Offer for ocean stories-seekers*

Every diving centre offers two foundational services which were clearly defined during the fieldwork. Their school character which is represented by the teaching services and the leisure axis of their 'fun dives'. Both services can be approached by the Ocean Literacy & citizenship.

Regarding the teaching services, some members of staff argued that the open water course would not be the best moment to implement the Ocean Literacy approach. This course is the first step to diving independently, therefore requiring the core knowledge provided in it. Safety is the priority and it should not be lost through the incorporation of other elements which could distract. Some comments from open water students supported this suggestion.

> *'In the next diving we have to put the glance at down there. I was 'test' mode because I was focused on the exercise. Just at the end, I was started to enjoy '(*MC170616 (5)).

In this connection, McKercher (2004) defends that the first-time visitors on land usually follow an active path, motivated by curiosity and a willingness to discover. However, the behaviour of underwater activity tourists shows an opposite pattern to their overwater fellows. The first-time scuba divers tend to be less proactive because their priority is to learn how to move into this new world, underwater. It is only after multiple immersions that the diver feels more comfortable to start to 'see' their surroundings and feel sufficiently secure to confront more challenges such as increasing their knowledge about the marine ecosystem. The interviewed diving practitioners confirmed this behaviour. A female diver expressed it this way,

> *'Diving changes your priorities because you have to concentrate on breathing and so on. If you see something it is an extra value' (*MD070616).

Certified divers also confirmed that the beginners are not interested in knowing about the milieu, that political or subliminal messages are not usually attractive to the general public.

While recognising that knowing the reasons and best practices for contributing would be ideal, these advanced divers agreed that this type of complementary information may be more attractive to experienced divers or recently qualified ones rather than beginners. For that reason, the instructors suggested that the next step in this approach related to ocean literacy and building a citizenship should be implemented with certified divers. The staff consulted pointed out that the advanced group is suitable for innovation because they have the technique under control and, therefore, exploration of add-on values for the diving activity would be feasible. This opinion is supported by the theory of participation (Branchini et.al, 2015) which promotes that specialisation is the proper base for an active role.

Ocean citizenship, however, needs a proper marine awareness, which must be developed from the beginning. The best strategy for achieving this, given the need for specialization in diving before the integration of additional approaches, suggests inclusion of ocean citizenship in the novice stages of diving such as snorkelling or open water courses. Starting early in this way would awaken the interest of future divers in the marine ecosystem health while recognizing the skill and safety components required in diving instruction. Indeed, during the fieldwork, it was verified that a way to relax nervous openwater students was to talk about the underwater beauty of that sea.

> '*Are you still nervous? Umm a little bit, but with the pictures about the fish of El Toro which we have just seen… I feel it will be special*', a comment of a really nervous open water student before doing its first immersion on the sea.

Therefore, the first step would be falling in love with the marine realm to cultivate the emotional connection with the sea among newbies. After that, the exploited situation of the sea combined with active participation in situ can be developed in advanced levels. In fact, the work in Mallorca highlighted a missing opportunity to attract new divers. It is a room for improvement within the diving sector in the island. For example, snorkelling is hidden within the entire offer and underestimated as a hook leading to a holistic underwater experience.

Snorkelling, sailing and paddle boarding can be considered as doors leading to in depth (literal and figurative) subaquatic activities. Some divers confirmed that their first contact was by way of such activities.

> *'I had curiosity for watching down there',* local beginner (PC250616 (1)).

Indeed, it is understood by many consulted divers that a good snorkelling experience is the driver for willingness to explore the next level. However, all consulted managers confirm that this activity is not taken seriously in the diving framework. Snorkelling is considered as a complimentary offering, like a *'taking a bath*' activity (in words of staff members in charge), particularly for children and non-diving companions. It is usually conducted by trainees of dive master certificate with limited skills and a lack of proper protocol to show the local sea due to the fact that it is the easiest service in technical terms. In addition, some instructors showed their discomfort in guiding snorkelling. They confessed that this is because it is an activity which requires more communication skills and knowledge about the local marine ecology. These answers corroborate findings that the staff are not well trained in guiding. Moreover, others think that it is not as interesting as diving. A student of an advanced dive course expressed it following way,

> *'the snorkelling is a question of 'observing'; while the diving is a question of 'living/feeling'* (SC260516).

Nevertheless, the reward could be higher to the diving centre taking into account the main market of walk-in divers of Mallorca. The commitment of clients in terms of time on their holidays is lower, suitable for a short experience without complications (equipment and courses). This experience, combined with good guiding skills can awaken the curiosity for digging more (diving); it can become a driver to change the mind of the individual who may decide to spend their holidays in Mallorca, learning to dive. There is a missing market out there, waiting to be caught but which requires innovative offers. Equally, the diving centres have to provide specific offerings for the domestic market as a strategy to strengthen the local knowledge and at the same time, expand the diving season.

However, the general picture captured during the fieldwork was one of unchanging narratives, leading to a deficiency in innovation, as mentioned above. An innovation which cannot be developed under conditions of standardization and emotional exhaustion. The managerial guiding style impacts the emotional labour of staff (Torland, 2013). In Mallorca, tiredness was observed among dive centre staff and confirmed by most of those consulted. They argued that diving in the same spots with the same narrative for months can be counter-productive to an engaging attitude. However, the influence of exponomy and hedonism in the leisure of this century entails demand for personal experiences that are

unique, varied and constantly changing. Therefore, this study promotes the thematic diving or diving with purpose which could be the way to energise the entire structure, including the motivation of staff.

To achieve this, the role of the facilitator has to be enriched and stimulated.

## 6.1.2 Facilitators

### Roles, profiles & training

#### 6.1.2.1 Roles

This new twist towards the four dimension of the seas, - embodiment and human relationship with the Ocean particularly -, requires that the roles of staff were reconsidered. The fieldwork has identified some key tasks which are not full accomplished or even missed.

If the centres have to become an ocean reference for the divers, the profile of the tourist diver has to be documented, analysed and used to guide decisions about what to keep or change in the diving offer and how to improve and measure staff performance. It is a good starting step for the new framework.

The fieldwork showed that the centres 'listen' to the comments of divers 'on board' but not transferred to any information structure. Therefore, such informed decision making currently only occurs minimally. As a result, the diving centres do not have the accurate divers' profiles defined. Indicators such as motivations or ecotourist types are not included in the basic information collected before the dive. As was explained above, psychological and socio-demographic data of clients is considered in the marketing approach but not in designing innovation in the performance. The lack of information collecting tools limits the development of new designs.

To overcome it, the duties of staff must be diversified. The land staff can be in charge of these tools with specific staff to conduct the data analysis by members of staff such as dive master's trainees. Equally, their own diving experience can become a source of information

about the new type of tourists (e.g, expectations, motivations, behaviours, cultural backgrounds), therefore, their staff (interpreters) must being knowledgeable of visitors' profiles. In this regard, there are significant experiences in land-based tourism which can be used as reference such as the Scottish Wildlife & Adventure Tourism Associations Wilderness Guide Training Programme (Cater, 2015:323).

On the other hand, the Ocean Literacy & citizenship requires to develop the place attachment and meaning in the diving experience. To get it, the diving trips have to provide the local context to marine knowledge gained during a dive through participative, constructive, informed performance. As a feasible measure, the managers suggested that part of the duties of staff could be to develop and learn a local guide book as happen in other land settings (for example the guides developed by Snowdonia Active in Snowdonia National Park (Snowdonia Active, 2018). Accordingly, this shift must not forget the work to transform the dive master to interpreters who combine the provocative, informative and entertaining role in order to make meaning and connect to the place as Ham highlights (2013). More detail in 2.6 and 2.7.

The transfer of knowledge between veterans and junior staff was identified as a foundation of this literacy; as well as the collection of the popular and scientific knowledge of the diving spots. The protocol would include their regularly updating with the interactions of diving experiences. In this way, the diving performance becomes a unique and dynamic experience linked with the diving spot.

These two main tasks can help diving centres to begin the path towards that new diving performance in feasible way. However, there is a key role in this process: the commitment of the dive centre manager defines the success of any change. During the experience in Mallorca, direct contact with the centre managers was constant and vertical hierarchy was evident in each centre. Thus, the manager is the role which can guarantee that any change is aimed at making more solid and sustainable knowledge production and distribution. However, the joint experience with this study showed that there is a specific facilitator role for this literacy approach with the support of the entire structure: the dive master.

### 6.1.2.2 Profiles

The new glance at the diving activity entails new angles and enrichments. In this sense, it is popular to hear that tourists want to have experts as guides because it is the way to guarantee a knowledgeable experience. This study was not an exception; some tourist divers suggested that to improve the cognitive domain in diving centres, professionals such as biologists must be recruited. However, this type of professional is not trained to communicate science to public sectors such as tourists. In Mallorca, the interpretation program has to note the uncertainty of the biodiversity. The main messages cannot depend on species in clear decline. Consequently, the 'sense of place' in the diving experience must be enriched with other perspectives. As an Spanish instructor pointed out,

> *'There are more things aside from seeing a barracuda'* (MI090516).

One of the ways to reverse this weakness is to invite a multiplicity of professionals to join the staff such as people from anthropology; sociology; theatre or film making, among others. For example, the new trainees can come from disciplines such as journalism to contribute to the collection of local stories and the design of this particular narrative, for example - in the form of ´the legends of El Toro´. In this way, the centres will have interdisciplinary teams to cultivate the innovation axis and be able to tell stories. But all of these professional backgrounds have to make an extra effort in communication skills in order to be able to tell stories. This means that how to create stories and seek suitable information is the key challenge for the new training program.

As has already been suggested, the role of interpreter for this approach must be assumed by the dive master. As was described by an international certifier officer in an interview,

> *'The approach of the Ocean Literacy is suitable for local dive master. This position is determinant to connect the activity to the place. If you hire the local people and they are trained as dive master, they could become as speaker of the local knowledge to the clients and to other staff members as well'*

The suggestion to hire local people as dive master was put on the table to reinforce this bond with the place. The benefits can be multiple such as becoming the speakers of the diving activity to the community or stakeholders in order to build synergies for the future ocean citizenship. However, according to the staff interviewed, the dive master is the

assistant of the instructors. For that reason, the consulted managers explained that the dive master positions are being replaced by instructors because of budgetary issues. The industry is overlapping the roles of both these positions therefore the dive master is 'sacrificed' due to the instructor can conduct both roles. However, the industry still supports this intermediate role, as was attested by a certifier officer,

*'This is a shame because the role of dive master is different than the instructor role'.*

Some of them envisaged that to explain and inform should be an important part of their performance. Thus, part of that staff understood that the position of the dive master would be suitable for the Ocean Literacy approach due to the main role as the facilitator of the diving experience.

This underestimation of the dive master role impacts negatively on guiding services, ergo, the diving industry needs to clarify this role, valuing it as the driver of the tourist approach in the activity. However, the imbalance between the development of skills to dive and the knowledge to discover the local spot is still a challenge for the centres. To move from mass tourism to, versions such as slow adventure tourism and ecotourism with the Ocean Literacy & citizenship approach, are defined by specialist and high-skill jobs (Varley & Semple, 2015).

To sum up, the real challenge for the staff is to build 'the memory of the place' to the diver, a mind map where the features and structure of the seascape are identified and recognizable. Thus, time, training and dives are key to be able to 'see' in this new world. The dive master with local knowledge becomes the guide to distinguish 'all of the blues'. As a consequence, the training program for staff for marine literacy has to take into account this re-definition of roles. The training program is the base of this re-alignment.

#### 6.1.2.3 Training program

The current industry is not prepared to implement the Ocean Literacy approach immediately. A joint effort should be made to prepare the sector to adopt this approach in a realistic way, as some divers manifested that,

*'the diving activity helps to you to realize that there is something down there: 'give you a hint',* explained by a female open water diver (SC080616 (1)).

But the inclusion of Ocean Literacy & citizenship into the industry demands time, effort and a combination of efficient performance and economic efficiency.

> *'Maybe it is not worth it'* as pointed out by local experienced diver (MD110616 (3)).

Therefore, to make it worth it, first of all, the training program should pay attention the local marine ecosystem and other links with the local culture. The creation of the sense of place should be a priority to the new diving offer as the tourist expects. According to Halpenny (2003), marine tourism should facilitate the learning and interpretation of the local environment to visitors. At the end of the day, travelling is to 'discover' new places. To achieve this, the skills related to communication and interpretation should be developed. In this sense, both key actors responsible for training – certifiers and dive masters - must be involved.

On the one hand, certifiers have to take an active role, beyond digital updating in which they are currently involved, to address content, skills, and competences. The education system is suitable to become an independent diver but is currently divorced from the guiding ability. Local diving should be promoted as an exciting place as any exotic diving destination. The dive master has to develop the sense of place to present every particular spot as a unique. Yet, surprisingly, there is not currently an offer related to local wildlife in the certifiers' education frameworks. In this sense, the consulted training material of these certifiers encourages divers to continue their education. The certifier's material motivates the diving centres to show the local marine knowledge which is ready in universities or NGO's as described in the previous chapter (PADI, 2010). Yet, in reality, marine literacy must have greater influence in the certifiers' evaluation. A consulted member of staff was clear about it,

> *'If you want that all of us know about the Ocean Literacy & Citizenship approach, this knowledge has to be part of certifier's tests '* (local instructor, PM210516).

However, the certifier's officers showed different opinions. This discrepancy is related to the responsibility about the local knowledge. A manager recognised that it would be possible and even benefit the sustainability of the activity, making the offer more associated with the dive spots. However, the international certifiers, which are in charge of this task, did not

share the same opinion. The main disagreement relies on the logistical barriers. As an officer confessed,

*'The tests are standardised, I don't see its feasibility in short term'.*

Therefore, this would mean a true change in the evaluation system. In their favour, the certifier interviewed suggested that they could use their multiple campaigns (e.g, blue mission and project aware) to personalize their messages of local issues related to global challenges such as plastics in the Sea.

As the movement to engage certifiers evolves, the development of regional material (The Mediterranean; the Red Sea; North Atlantic, and so on) must not be postponed. It can be developed jointly in order to highlight the - socio historical and ecological - richness of the regional marine realms. For example, a local manager interested in scientific diving highlighted the National Committee of Subaquatic Historical Archaeology Heritage as having a significant role in this new narrative; as well as the scientific network of Mediterranean ecology settled in Mallorca. In this way, the diver will not learn a master class about absent coral reefs when the course is carried out in the Western Mediterranean. However, as trainers of experience, the certifiers have to achieve a change of mindset, understanding the diving in a post-modernist context. In this point, maybe the other actor could be the driver for the change: national training system.

The Spanish technical education system provides a limited knowledge of tourism due to their sport mind-set. Despite this, there is an educational scheme that can provide the basis for including this type of knowledge in the national scheme: the 'technician about outdoor sport activities into the Nature' (medium and upper grade) (MAPAMA, 2016). The education program is not approached from the dynamic of tourism, although the upper grade includes skills about conducting groups (monitor). These degrees are popular among Spanish trainees who want to become a dive master; although it is not a compulsory requirement for working in the activity. These grades are designed for those interested in becoming an instructor/guide of outdoor activities for less technical skilled activities such as hiking, biking or sailing.

The next step would be to add the diving training. By way of this route, some disagreement among stakeholders explained before can reach a common understanding: the national

training scheme could be focused on the dive master with distinctive skills (guiding). The daily tasks of these trainees could be divided into diving technical assistance combined with assignments related to the touristic demands. Without a legal obligation of this degree, the industry can consider expanding the training responsibilities as long as the dive master is not considered an assistant of the instructor. The national education system has the opportunity to offer professional guides suited to contemporary diving. Ultimately, the diving centre will decide which type of dive master matches its business offering.

In conclusion, through a shared responsibility of knowledge provision, the training scheme can be adapted to cultivate a place-based diving experience where insight-seeking is developed through the experiential mind-set of this profession.

## 6.2 From passive to active observant divers

### Theoretical model of committed diving experience

The pervasive image of Nature is in transformation. At present, Nature is shown in a radical way (ideal or devastated); its description involves saturated colours and 'hot' species (e.g., sharks or sea turtles); and its interpretation is humanised (heroes like dolphins and villains like jellyfishes). In addition, regarding the Ocean, the ancestral fear of the deep blue or a sea full of algae is still in the collective conscience, being 'used' by the mainstream. In this respect, documentaries (e.g., BBC Planet Earth or Before the Flood) have become principal vehicles for this new societal perception. The entire media industry and social media have a significant responsibility in this situation. The result is an unrealistic image of Nature impeding the development of suitable 'communication' with the environment due to the lack of proper knowledge. To transform the virtual conceptualization of Nature, interventions must take into account this social disconnection with the 'real' landscape.

In this context, outdoor activities are a suitable mechanism of re-connection. In the specific context of the Ocean, diving is the best way to be in touch with the 'real' marine environment without intermediaries. With no screens, no windows, no boats, only a mask and wetsuit between you and the Ocean, the embodied experience is guaranteed. Therefore, the senses are the way to begin the conversation with the marine realm. Feeling

the Ocean with all the senses makes it more 'real' with good and bad sensations. It is a non-human environment, with flavour (e.g.: salty), smelly (e.g.: decomposition of Posidonia on the beach), non-empty (e.g.: algae waters), noisy (e.g.: jet skis), and bluish. Through one concrete experience, the connection with the marine ecosystem is activated. Taking into account the Learning cycle of Experiential engagement (Kolb, 1984), the concrete diving experience should give way to a reflective observation under the guidance of staff. The result is the abstract conceptualization about what is seen and felt with the proper knowledge. It is the 'aha moment' mentioned by Dahl (2018) when the theory makes sense and becomes relevant. This step stimulates the personal meaning of experience to facilitate abstract conceptualisation, where new concepts are formed. Given that reflective and experiential engagement combined form a driver of responsible nature-based tourism experience, this path can promote involvement in citizen science activities by visitors. The entire process has as the main purpose to 'activate' the mental structure for reaching a commitment with the seascape.

To achieve this aim, the diving trip can be designed to take tourists through three emotional and intellectual phases:

(1) Exploration of senses underwater: Through the philosophy of 'Deep Ecology', the ecological self can be encouraged to show the innate value of ecological diversity of the Ocean; the interconnection among species, function, and events; and the fact that as individual and society, we are immersed and linked with the cyclical processes of Nature.

(2) Exploration of these connections: The web of life as a reference for systems thinking can contribute to breaking the unidirectional thinking of cause-effect. Thus, knowledge about the Ocean can be turned into significant and relevant information for visitors. As such, the Ecosystem Services approach is revealed as a useful tool to open communication channels between bio-centric and anthropocentric perspectives to develop systems thinking. The role of the local ocean in the development of their communities can be the path.

(3) The exploration of human potential to restore marine ecosystems: the premise of which must be based in the mantra of 'making a difference' through action. Controversial issues demand individual and social responsibility and action through

critical thinking. This approach relies on defining the problem and seeking potential solutions. Questioning, highlighting relevant information, and raising conclusions are the suitable path for a well-cultivated critical thinking process. Therefore, the communication of the diving experience must be clear and precise to lead to well-reasoned solutions.

To complete this, the entire experience must be conducted under the criteria of the TORE (thematic, organized, relevant and entertaining) framework which addresses the recreational activity from the ludic - thematic perspective.

In conclusion, 'the committed diving experience' model (fig. n.63) is a transition from the creation of thoughts toward developing of meanings with the purpose of reaching the connections with the blue space.

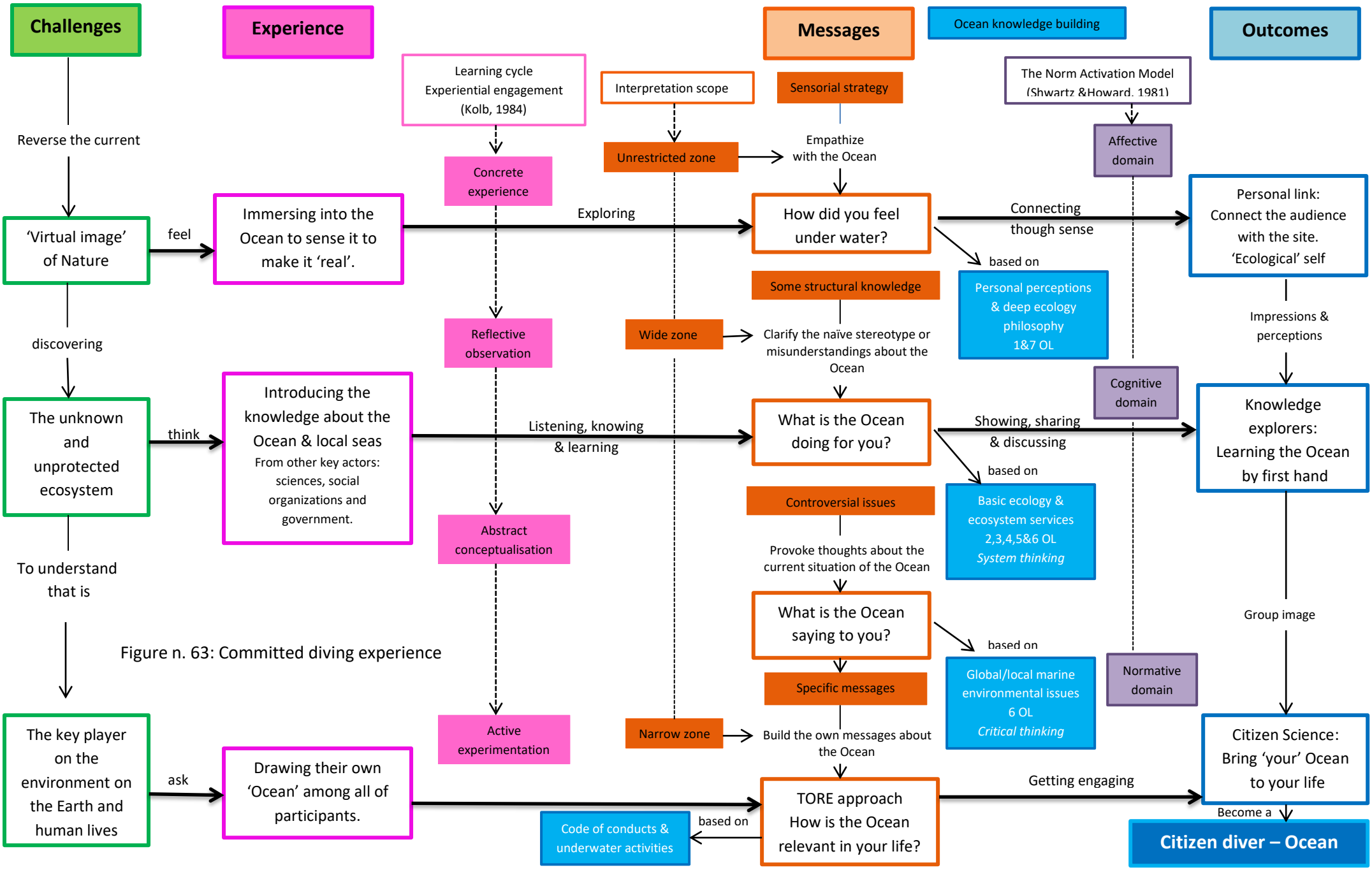


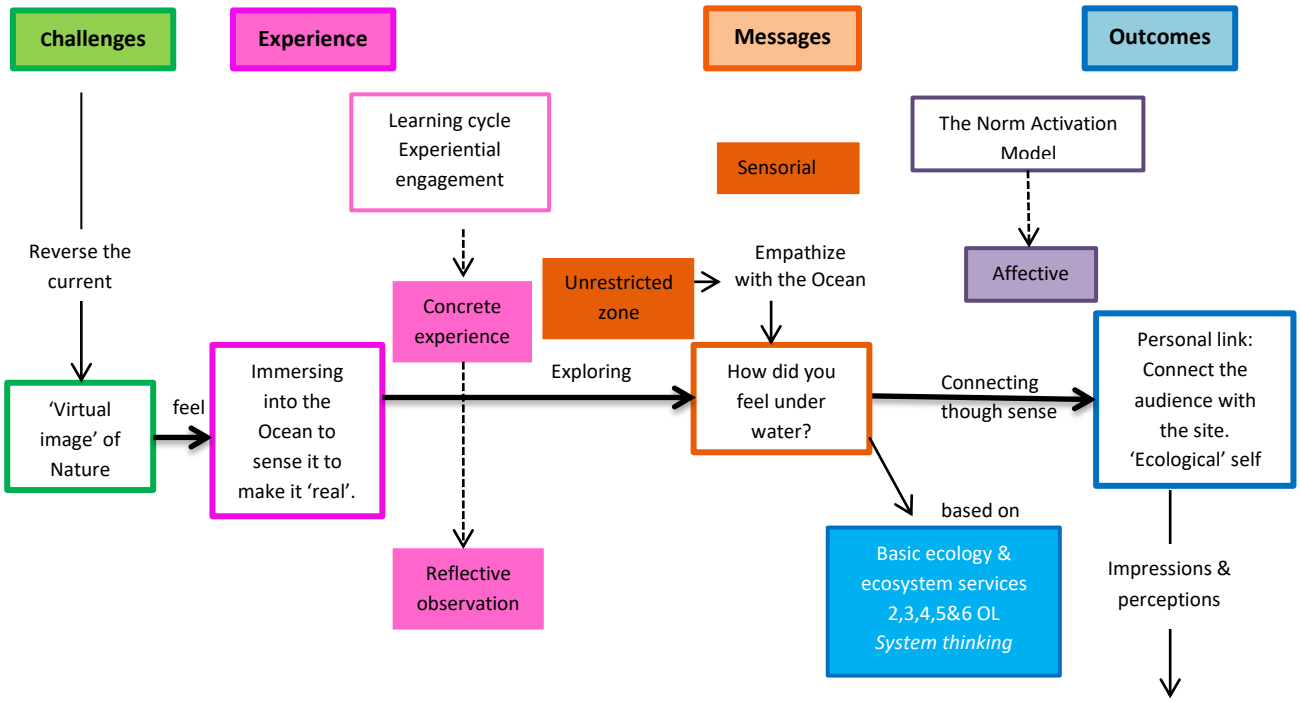

Figure n. 63: Committed diving experience

Next, each domain – the emotional, cognitive and normative - is explained to better comprehend the model, adopting the above figure (n. 63) as the guideline.

### 6.2.1 Emotional domain

#### *The feelings matter*

Figure n. 64: Emotional domain. Theoretical model




The emotional level (fig.n.64) is the basis for the first approach in the concrete experience. The diver is in the 'embodiment stage' of the diving experience. The staff have to be aware of this 'feeling's moment' and to foster a dialogue by asking '*how do you feel down there?*'. As was shown before, the fieldwork revealed that most divers explain their experiences through connection with the water column. The landscape generates a hyper sensorial meaning (Vereda, 2017). The inner embodiment of this activity gives the opportunity to 'live' nature without barriers in order to remember that we come from the oceans. At this stage of the diving experience, therefore, the interpreter should be well placed to communicate thoughts to divers without any interest in assimilating any particular message,

just with an idea to start the active observation. In the interpretation scope, it is named an unrestricted zone of tolerance (Ham, 2013:153). Regarding the Nature/Ocean, empathy must be the main message, exploring and sharing the personal perceptions of divers.

As a consulted local advanced diver explains clearly,

> *'You have to be smart to feel empathy to connect. But we have selective empathy. Therefore, we have to promote the empathy as the main value in order to be able to value the surroundings*' (MD140616 (1))

To achieve this aim, the deep ecology concept has to form part of the interpretation strategy with the 'ecological-self' as a core notion. Some divers showed that will, summarised in the words of a young student of advanced course,

> '*I would like to be at the same level of the marine life. See them face to face but not over them. The diving gave me this chance to feel involved in it*' (SC260516).

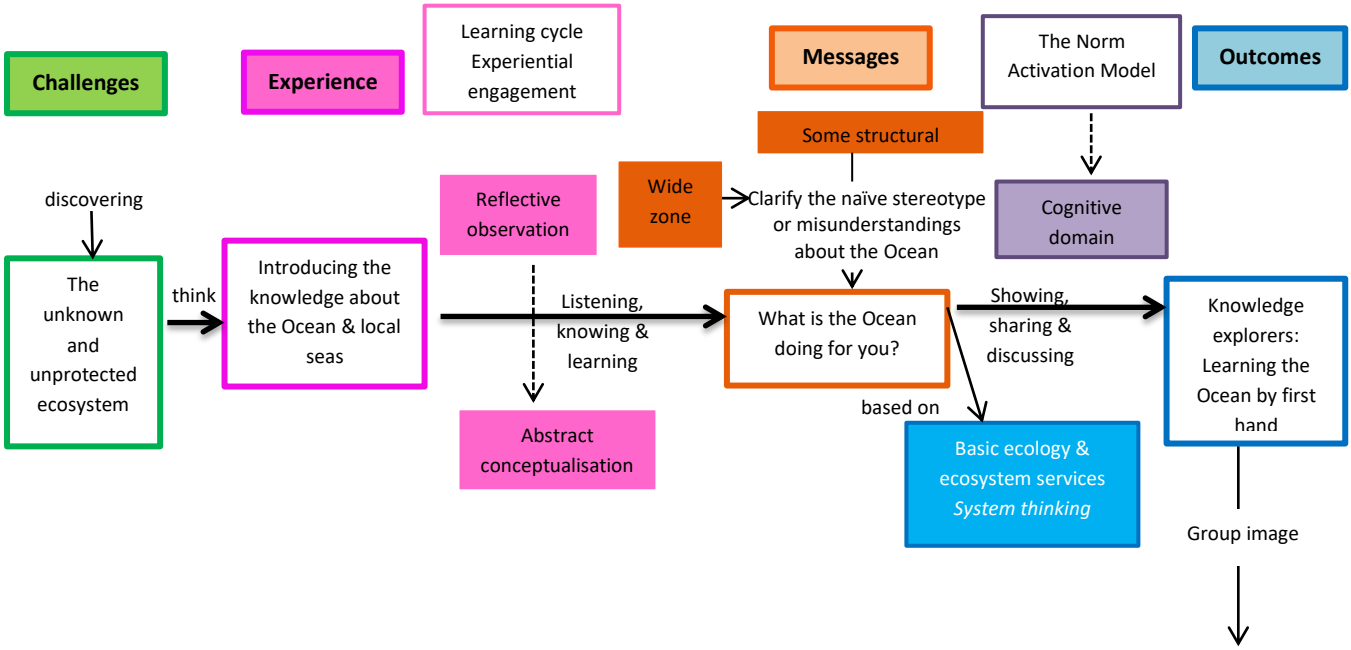
This deeply physical connection during the diving can reduce the feeling of vulnerability common to subaquatic activity. Training, time and an excellent guide are foundations for reducing the sense of vulnerability as well as proper knowledge about the context. Improvement in diving skills also makes one feel more confident underwater, so the knowing *'in situ'* of the environment will be more successful.

The first-hand experience of diving activates reactions such as the 'wow' effect; and, with enough frequency (number of dives), divers can develop the association with and dependence on place. Yet, without proper knowledge - as has been reiterated along this study - that connection will not be significant.

## 6.2.2 Cognitive domain

### *The meaning makes the difference*

Figure n. 65: Cognitive domain. Theoretical model




Understanding the complex ramifications of the human bond with the Ocean can contribute to making the underwater realm more familiar and accessible (fig.n.65). Showing the Ocean as part of human heritage can be one way to develop the required empathy. Principle 6 of Ocean Literacy reminds us that the ocean and humans are inextricably interconnected.

The human socio-historical relationship is the foundation of the sense of belonging and the transition to approach the cognitive domain of the design. A Spanish experienced diver stated this as their motivation to dive in Mallorca;

> *'Why to dive here? Because it is ours, you have to know our place, it's cool to know the local wildlife'* (MD040616 (2)).

Places like Mallorca are not usually filmed for stunning underwater documentaries as some divers noted. For that reason, the general public can only access the underwater world of this region if they interact directly with it through activities such as diving. This thought brings along with the notion of belonging. Nowadays, globalisation brings influences outside the local territories, impacting on their cultures. Place identity was more significant in other times where the culture was developed by way of physical spaces. The sense of belonging

could contribute to reconnect with place, in this case with the Ocean. It is said that '*we care for what is part of us'*; therefore; the development of empathy must be part of this new identity. Consequently, the sense of belonging - which intertwines emotions with the cognitive domain - is promoted, being reflected in the place identity, which is the chosen path of this model to improve the connection with our local blue space.

The 'sense of place' is the core of the Ocean Literacy and it should drive the business strategy of the entire industry to stimulate divers. The sense of place relies on team work where the diving centre plays a lead role. A combination of place meaning and place attachment forms the basis of the interpretation strategy. The place meaning provided by visitors and local divers is decisive in this place making. In this vein, the perceptions about Mallorca (pull factors) influence the motivations (push factors) to choose it. As a reminder, the main answers of consulted divers generated a collective image of a place with crystal waters which generates high visibility; where the light of their blue skies tints the water column; making the search of living beings a true adventure within the labyrinthine seascape. However, experience in Mallorca has demonstrated that its diving experiences can offer much more.

This collective and individual image is a limited version of its *'blue story'*. To start, place making requires making choices: *what do you want to place value on?* This should be the central question guiding an Interpretation strategy. In addition, this collective and individual image can provide the stimuli for the place attachment, understood as the emotional bond with its waters. Consequently, the Interpretation program must build the narrative of a meaningful space.

According to a manager with more than thirty years of experience, the divers start to look at the horizon as they are gaining experience. In short, the nature lovers usually enjoy the entire scenario. This idea speaks to the holistic approach where the physical, literary and metaphoric landscape is a picture to draw in the diver's mind. To that end, the storyline is developed though the intangible values of the seascape. In contrast to this approach, the principal diving activity in Mallorca to date has focused on tangible elements of diving. The challenge, therefore, is to prepare the industry to create mental images where the tangible resources are enriched with their intangible meanings (Bacher, et al., 2007). The

mindscapes and storyscapes are the channel to know the history of a place and to put value on their socio-cultural meaning as a valuable resource for tourism. The blue humanities design that figurative place, a human production based on knowledge from different sources such as scientific institutions, communities, and personal experience. However, as a German instructor highlighted during an interview,

'*people don't like to be educated during their holidays'* (PI180816)*'*;

This knowledge transfer is conducted during the leisure time; therefore, these relaxing conditions define the manner and content of the knowledge. Info-entertainment is the approach for this purpose and the diver should be the centre of the approach, where the first-hand experience is everything. In this regard, a local experienced diver expressed it perfectly with the following comment,

'*you can be the main character of a documentary'* (MD140616 (1))

To achieve success, the delivery of knowledge must grab the attention of the audience. The diving centre usually has those passionate staff, who show how to appreciate the details of the local sea, with the final objective to make divers feel privileged for being explorers of the unknown. Or as described by an open water student diver,

*'be able to visit the ground floor of the planet'.*

Regarding it, in this part the world, the iconic shorelines of the Mediterranean Sea host historical relationships with their shores which can be the backdrop of experience with own identity.

The Mediterranean can be discovered through ancient maps of the Mare Nostrum, including imaginary marine monsters of the time as one of multiple ways to approach these iconic waters. Using the mythology of ancient creatures which were considered monsters by society can be a valuable interpretative resource to talk about the evolution of the biodiversity, for example. Likewise, the location of Mallorca provided the island with a good trading contact with France. As a result, there exist a lot of stories about illegal trade goods (smuggling); of pirates such as Dragut, lieutenant of Red Beard, linked to festivals and events - '*moros y cristianos*' - in some coastal communities such as Port

Pollensa or Port Soller; and, more recently, Cabrera which was repurposed as a prison during World War I.

Another more practical narrative can be developed applying the ecosystem services approach. *'What is the ocean doing for you?*' was the question asked to explore this approach. People have a tendency to pay attention to the things which can be directly helpful to them. Therefore, the services provided by the Ocean must be the priority in the interpretation strategy to foster empathy with the marine ecosystem. This helps to reinforce the individual connection with the place. This is the moment for the promotion of the thinking system in the wide zone of tolerance in the interpretation program (Ham, 2013:156). This zone of tolerance requires a certain type of 'persuasion' due to the fact that the meanings generated by the visitors have to fall inside that zone. Caution must be adopted, however, for without proper knowledge, misunderstandings or misinterpretations are frequent, as is evidenced by this local beginner diver's opinion:

> *'When you dive you feel that the animals are not changing their behaviours because of you, you are part of the scenario, and you are not a tourist. However, the fish - who make closer the surface - change the behaviour because of you, they are used to you'* (PD020616).

To avoid such simple interpretation, the diving experience should involve a consistent and relevant knowledge to leave an imprint. The Ocean Literacy & citizenship is more related to a stepwise 'acupuncture' strategy than overwhelming the system with vast ocean knowledge. Therefore, as was widely supported, the framework to follow must be formed by information themed with relevancy to the audience; organised; and with the challenge to be enjoyable (following the TORE scheme of Ham, 2013).

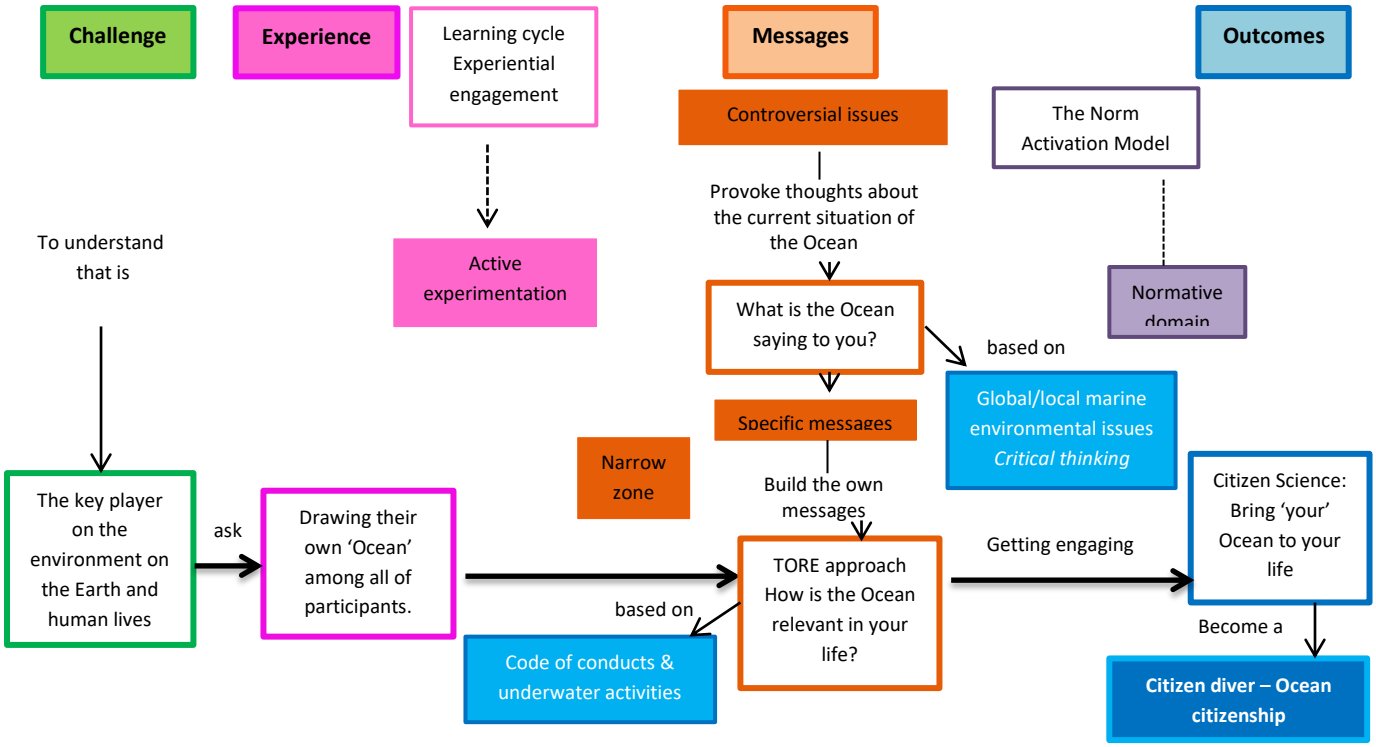
At the same time, the collective conversation with the sea can contribute to build the social construction of the Ocean. Too many misunderstandings define that collective image, so the group must be that who clarifies it and re-shapes it. To begin, the individual and collective perceptions should be shared during the diving experience to make the Ocean more 'real' and less 'ideal'. It's a team work to learn to 'read' this unfamiliar ecosystem for human beings. In this regard, through the Ocean Literacy principles, clear, precise and relevant concepts can be shared with the visitors to validate or refute some assumptions related to the Ocean. The challenge is then for the industry to make the experience more interactive

and participatory among divers and with the staff to build up the 'blue' normative set of the diving community.

### 6.2.3 Normative domain

#### *The social norms impact*

Figure n. 66: Normative domain. Theoretical model




*'What is the ocean saying to you?*' is the approach to stimulate the sense of responsibility towards pro-environmental actions as part of the personal norms (Shwartz & Howard, 1981). The experienced divers confirmed on multiple occasions that when you dive for a long time in the same place you can see change. The personal stories about a childhood full of fish and octopus in Mallorca waters were the common thread of these conversations. To avoid changes occurring because of human intervention, diving centres have begun to focus on Low Impact Diving, or 'diving as a ghost', as promoted by Cousteau. The industry has assumed a philosophy of becoming camouflaged to disturb the biodiversity as little as possible. At present this commitment goes beyond being invisible as some managers and

instructors commented that in some places (e.g.: the Medes Islands, Spain) an ecological briefing is developed to avoid the destruction of marine ecosystems. Consequently, the literacy about the fragility of ecosystems is being covered to some degree.

The current marine situation, however, requires that the new business philosophy shifts from being one of doing no damage to a more active ('can do' attitude) commitment to address the real time situations happening in our oceans (fig.n.66). To that end, this approach promotes the next step to expand the information addressed in the dive experience to encompass more angles (e.g., the socio-cultural relationship with the Ocean) at the global and local scale; and the impact on our lives (daily routine).

The fieldwork of this study supported the conclusions of earlier studies (Marshall et al., 2011) that highlight that the diving industry is still struggling to accept the risks related to global changes such as the Climate Crisis. For operators to perceive and accept the real risks associated with such changes, they need to be engaged in local environmental concerns which are directly connected with the activity itself - such as overfishing or invasive species. To that end, the literacy approach needs to be more active, participatory and inclusive. In this vein, the project of Sea Watchers Programme (citizen science) described before is a good example of this approach. However, it was still secondary in the business mind of diving centres because of the logistical issues previously explained. In addition, in Mallorca several divers highlighted other limitations gathered in the words of local middle aged experienced diver;

> *'the problem with the environmental activities is that they are not usually in a row; therefore, there is not a loyalty by the audience. The public ends up not to feel involved into the processes'* (MD140616 (1)).

They confirmed that some talks about conservation in some diving centres; a few beach cleaning events; or fund raising now and then, constituted the scarce environmental content. According to veterans, this has been a tendency in the diving industry so far, generating few followers to the Ocean cause. Consequently, new strategies have to be addressed in order to make it more appealing for the future of the activity. One of these strategies is to boost the self-imposed identity as an eco-friendly community, considering its positive impact on the behaviour.

The green image of the diving activity was supported by most divers interviewed as well as staff and some stakeholders. The entire diving community consulted in Mallorca truly believed that it is an eco-friendly activity perhaps because it was often compared to the intrusive marine activities such as subaquatic fishing. However, that collective construct lacked a critical reflection about the environmental role and impact of the activity, beyond the *'no touch'* approach. The exploration of their cognitive domain during the fieldwork about the marine ecosystem and its current status endorsed this statement. These divers showed a limited knowledge about the relationship of 'land' origin of issue and their 'marine' impact. However, as Picken (2017) points out, *'the fight to save the Ocean begins on Land'*, ergo, the current marine health demands more thoughts (and actions) about this relationship. Consequently, regarding diving, although it is on the green track, there is room for improvement. As explained previously, a code of conduct could be a product of efforts to connect divers with the place while also being a good opportunity for a diving centre to demonstrate its commitment to the Ocean. That commitment with the Ocean is developed by the term of ocean citizenship in this study. Ocean citizenship is a construct which relies on collectivism; therefore social participation is critical. The line of thought here is that ´if you care, you share´ (Finkler & Davis, 2017), so it is important that part of the work of the crew is to make divers care about the Ocean.

Reflective engagement through provocative interpretation is the framework for ocean citizenship based on literacy. In this process, the free will of each participant to generate their personal conclusion is the purpose of the entire process. Indeed, absorbing only one thought from a provocative strategy could be understood as a poor result. As storyteller Susan Strauss claims, a storyteller should always begin by choosing a story whose message seems good and important to the teller, but should remain fully open to the idea that a story can have many messages (1996 cited in Ham, 2013:154). However, regarding the poor social knowledge about the marine realm, that freedom or lack of instruction should be reconsidered. As Garrod (2007) points out, the user of marine settings shows basic ethics related to the marine realm. Hence, any action related to the seas needs more guidelines. As such, the interpretation program has to include the proper behaviours with the blue space in order to '*help*' those afterthoughts. This is when the interpretation program rests

on the narrow zone of tolerance within the interpretation scope (Ham, 2013:160) (see figure n.66).

As was reiterated, the storyline here must entice the divers to be part of the positive shift towards an 'activist' tourism which demands active rather than passive observation. To that end, every action needs a routine frequency, generating habits (Whitmarsh & O'Neill, 2010). This is the reason to support that the stream be included in the structure of the activity to make a proper impact on the diver's ethics, both inside and outside the water. In other words, the ultimate purpose is to bring the ocean to their life to be able to answer the question*, how is the Ocean relevant in your life?* To achieve this aim, enrichment of marine knowledge; cultivation of a stronger bond with the local sea; and participation in ocean citizenship can be shown as benefits of the entire continuum (from novices to experts).

The way forward is the design of a strategy with seasonal programs to implement the Ocean Literacy & citizenship approach properly. To begin, in the appendix 11 there are one examples of each domain of the model, explained above, to reflect its feasibility.
However, in honour of the constructivist perspective implemented during the Mallorca experience, and taking into account the importance of continuity and integration in a scheme, a proper toolkit for a thematic experience is shown below.

## 6.3 Toolkit for a trip of knowledge

### *Diving in Mallorca waters*

The following section reveals how the current diving centres can already give steps forward to the integration of Ocean Literacy & citizenship. Recapitulating what was exposed in the section 6.1, this approach is led to the ocean-stories seekers through meaningful dives where the place identity is the storyline. To achieve it,

- the manager must be guide the transformation within the scheme with the support of the certifiers (training and material associated to the regional requirements)as as the chapter of Western Mediterranean in their diving books.

- The training has to consider the guiding services, as facilitators of connections with the local seas. With particular focus on the design and implementation of thematic dives (sense of the place).
- The diverse and updating knowledge is the vehicle to build that place meaning where the scientific and social networks are the sources.
- The diver master should plays this key role who is interpreter of the sense of the place to visitors, with a specific training ( maybe by the national education system) and the support of the local material developed by the international certifiers and the own centres.
- The duties of the staff in this approach require to be re-organized with the integration of touristic services (info-entertainment)
- Consequently, the profile of staff should include more variety to hire storytellers; experience designers; and creators in general.

All these changes need an innovative mind and solid network of stakeholders. As a result, the diving experience assumes the challenge to be the facilitator of that connection with the stories of the Med. The experience begins since the diver gets in the centre, therefore, the Ocean literacy & citizenship narrative has to be integrated from facilities to script which is shown below.

### *6.3.1 Facilities: the Blue zone*

The human - marine realm interaction can be enriched easily through feasible ways. The success of interventions/changes depends on the available means and facilities; and staff skills. As such, the interpretation programs can explore other time shifts; staff expertise and means during the entire diving experience. Taking this into account, the starting point should be to use the infrastructure to arouse interests as a part of the interpretation strategy. The centres involved in the study underestimated their role in demonstrating local ocean interaction. The facilities usually are used to sell diving equipment (sport approach), and publicity of the international certifiers or diving brands is exhibited in the installation (Figure n. 67).


Figure n. 67: Certifier publicity in Dive centre. Mallorca

The extra income from the sale of products monopolise the use of centre's space. For that reason, more than one member of staff stated the current commercial character of the activity, or in words of a German instructor,

> *'the instruction process should develop the skills related to communication, interpretation and so on instead of how to sell'* (PI180816)

Indeed, as has been explained, the diving centres involved in the study address divers as 'clients' (nomenclature used). For that matter, if the axiom defended by Sapir (1958) is taken into account that words change the reality, the '(tourist) divers' category should be part of the new routine. In other words, this dominant character of a diving shop means that the space is being underutilized with only two uses: school and shop.

In contrast, the suggestion is to become these facilities into a 'blue zone' with multiple uses in order to make it more dynamic, where the diver can be invited to be a part (e.g., subaquatic photography exhibition or panel of wishes to the Ocean). Accordingly, during the fieldwork, some work meetings (brainstorms) with some members of staff, were conducted to show the potential of the facilities in Ocean Literacy terms. As a result, and taking one of the consulted diving centres as an example,

- ✓ the wet zone (showers) could host ocean citizenship messages about good practices during your daily routine to protect the Ocean,
- ✓ the exteriors (terrace) could be good places to show pictures related to the Ocean Literacy principles (Figure n. 68).


Figure n.68: terrace of a diving centre of the study, Mallorca, 2016

- ✓ In the reception desk, information about how to be part of Ocean citizen science can be provided (local NGO's brochures).
- ✓ Meanwhile, the dressing room can be used to show messages about the role of the Ocean through the notion of ecosystem services.
- ✓ Lastly, the classroom can be the place to show the Mediterranean (past and present).

Best practices; seascape and marine biodiversity; impacts and solutions; individual and collective actions should be the foundations of this dialogue. To this effect, the provided narrative of staff is enriched hereunder.

### 6.3.2 Script: the Blue biography

Equally, the divers were consulted about the improvements in diving speech to include the Ocean Literacy approach. Some divers reiterated that the use of visual aids is a valuable resource to reinforce the seen species. But as a French newbie diver suggested these should be used,

> '*always after the experience in order not to ruin the discovery spirit and disclose the surprises which you can live during the dive*' (SC090816 (2)).

This comment reflects the popular perception of the sea as a mysterious place full of surprises. Another way to see it was expressed by an advanced diver, '*you never know what is going to come to you'* (SD260516). Consequently, the interpretation strategy must reinforce this emotional connection with the capacity of revelation and surprise.

Perhaps the solution is the using of means such as drawings or aquarelles to give some clues and improve the active observation. However, as a diver highlighted during debriefing, the pictures taken during the experience could be shared, '*it could be perfect to know what we saw*'. It is a good activity for building the memory of the place and at the same time, covering the social demand of recording everything. In addition, it can provoke conversations between the staff and divers to reinforce some messages; and enrich a diving community committed to their seas.

To get this commitment, the connection starts from the briefing which has to be specific to each diving spot in order to introduce the storyline. Later the messages can be reinforced during the surface interval time in the double diving trips where the narrative can be re-written with the participation of divers.

In addition, there are other channels to promote that engagement, as a highly concerned newbie diver suggested,

> *'pro-active information should be available on website including attractive points and issues to face, in order to live more empathic and intensely the diving experience'* (PD030616 (4)).

The suggestion is related to pre-trip information but without significant details to save the surprise feeling, - already commented-, of the first-hand experience.

The sense of the place is an endless source of new angles, - as many as personal meanings developed by their bonds (Jorgensen & Stedman (2001) -, which can surprise even to locals. Therefore, the social interaction with 'others' can dramatically improve the experience. For example, some divers suggested to include the stories from the past, listening to the veteran divers about how that marine place was. Thus, the log book could be also used as a joint 'blue biography' of the sea (the changes of the sea). This registration can be part of the active diving experience and the push to create a dive community and an active social media to keep them in touch (Fig. n.69).


Figure n. 69: Memories post dive. Diving community
A post in the Facebook page of diving centre. Mallorca, 2019.
Photo credit: Tramuntana Diving & Adventure

The post trip debrief must be included within any interpretation strategy due to the fact that we live an interconnected world with new social interactions and activisms. In this manner, the interaction with the sea will be cultivated in the entire experience. In addition, as diving is a shared experience, the social bond with the place is extended.

To sum up, time, opportunity, place attachment (sense of belonging), and sense of place are the grounds upon which the promotion of the 'activist diving tourism' can be built. As a result, slow adventure tourism and ecotourism (probably in 'softer' versions) have been revealed as suitable schemes. Yet, in Mallorca, the diving experience is too short, as was shown before, to make an impact on the diver's image of the Ocean. Ocean Literacy & citizenship requires time to be spent with the diver; consequently, it has to be a strategy embraced by the entire system to give this 'exposition' to the diver. The 'Blue Brick Road', presented below, can be a contribution towards that strategy.

### *6.3.3 Thematic dive: the Blue Brick Road*

'*Blue Brick Road*' is a path by which to traverse the seas in different ways. Like the Mediterranean floors of tiles, the diver chooses which activities it prefers and in this way creates their own piece of the local blue stage. In this manner, the experience can be relevant for them and equally enjoyable due to the thematic effort as the TORE framework suggests.

These activities are displayed as follows. The first two about the second principle of the Ocean Literacy stream (*The ocean and life in the ocean shape the features of Earth*) are explained in detail as an explanation of the strategy. Later, other examples are only attached as summary data sheets.

The data sheet begins with a thematic title which comprehends the main message. Thereafter, the argument explains the cognitive content of the trip, enriched with another cognitive bonus as secondary argument. The main resource points out the main marine character of each story. The Ocean Literacy principle and ecosystem services are the backup

of the Ocean Literacy stream. The interpretation mean is the suggested way to approach the audience. For instance, the use of interpretative strategies like games (e.g: hunting treasures) under the citizen science scheme. Regarding the type of divers and season, both are suitable for each trip, but will depend on the design and timing. These data sheets must be only taken as a guideline, and can be developed for specific sites and markets.

The main challenge is to find the narrative and the interpreted meaning suitable for the messages.

## 2. The ocean and life in the ocean shape the features of Earth

### *'The Med, the biggest Gym in your neighbourhood'*

This proposal reflects the strategy of diving centres which put the emphasis on diving as a sporting activity within a framework of a wider range of water sports such as paddle boarding. Accordingly, it is suitable for those who feel attracted to diving because of its inner physical axes (fitness/challenge/enjoyment). Regarding Mallorca, the subaquatic geology is a perfect environment for this. On many occasions, the staff commend their endless number of holes and caves which allow practising 'active diving', therefore, 'doing' underwater rather than just 'seeing' (Cater & Cater, 2007: 189). This line of argument coincides with the Blue Gym concept which promotes day-to-day activity in the Sea. In addition, it can be a good way to develop a dependency on the place among local divers, as a factor for the attachment to that place, as well as, creating a loyal diving community in the 'neighbourhood'.

To enrich it, this diving offer could include the story of the chemistry and physical action - the principle 2 - of the Ocean in those waters (e.g.: coastal caving).

**Data sheet**

**Topic:** Build up the memory of the place (and dependency)
**Extra bonus**: Health benefit and the strengthening of the 'embodiment' notion.
**Main resource:** The seascape
**OL principle:** 2
**Ecosystem Services:** Spiritual and Cultural wellbeing (Cultural services). Blue Gym

**Interpretation mean:** hunting games
**Target:** local divers
**Season:** shoulder season

**2. The ocean and life in the ocean shape the features of Earth**

**1. The Earth has one big ocean with many features.**
**3. The ocean is a major influence on weather and climate.**
**4. The ocean made Earth habitable.**
**5. The ocean supports a great diversity of life and ecosystems.**

### *'Dancing with the Posidonia'*

This thematic trip emerges from the popular comments related to the physical connection with the water during the fieldwork. All of them can be summarised in the following quote expressed by a local experienced diver,

> *'you adapt to the rhythm of under there. I love to look up and see this entire amount of water and being in the middle. It brings me a lot of calmness and peace. I love to be quiet, trying to be part of it but without being noticed'* (MD140716 (2)).

The general idea about the different rhythms - of which the Nature is shaped- can be explored through this somatic experience. It is the opportunity to explore the 'ecological-self' and connect with the aquatic surroundings. The third dimension of the water gives a refreshing occasion for people who express with their bodies. According to multiple intelligences, there are people who communicate with the world in different ways such as through their bodies. Bodily-kinaesthetic is the way to reinforce the inner embodiment of diving. '*Now I flew without wings*'(TIME, 2003) was a popular quote of Jacques Cousteau which shows the emotions involved in diving; and it reveals one of the most popular motivations. Letting the industry re-think how to use the body in their diving proposals, is part of the required innovation. More oxygen may be consumed which means shorter experiences but maybe it is worthwhile if the experience is new and more intense. Taking into account the golden rule of no touching, the diving experience could include 'dances' down there such as games or another way to express the connection with the water column. *'Dancing with the Posidonia'* allows paying attention to how the different elements

of the seascape move, including the diver. It is a suitable moment to talk about currents, waves, tides, nutrient distributions or animal propulsion mechanisms.

**Data sheet**

**Topic**: Embodiment
**Extra bonus:** The ecology of the key ecosystem in the occidental Med.
**Main resource:** The water column and Posidonia meadows.
**OL principle:** 1-5
**Ecosystem Services:** Supporting, Provisioning, Regulating & Cultural services.
**Interpretation mean:** the diving performance (diving skills) & the script
**Tourism target:** local divers/ tourist- divers: open water and new divers
**Season:** shoulder season & peak season

As a general extra bonus, offering diving packages to specific professions could be the way to discover these new relationships. In this example, the Ballet School or Art School can bring the art into the activity, exploring and cultivating elements such as light, colours or density of the marine realm. Again, it is a formula where the experience is lived through a strong embodiment factor which is intertwined with the relevant knowledge about those ocean physical factors (for example principle 2 of Ocean Literacy). This professional exchange can be understood as a win-win situation: the creativity which hosts the seas for artists while the industry is enriched with these new diving experiences. This means the interest in the marine realm brings new offerings which can mean an opportunity for business innovation. These new conversations with the Ocean involve fields such as art, communication and science.

The following brief examples show further how the positive relationship between the strategy of ocean literacy and the diving trips can be developed through the local narrative related to Mallorca waters. The Ocean Literacy principles are the guide.

## 2. The ocean and life in the ocean shape the features of Earth

***Blue footprints***

**Topic:** History of the Mediterranean
**Extra bonus:** The importance of the geology in island inhabitants.
**Main resource:** The geological history of the Mediterranean
**OL principle:** 2
**Ecosystem Services**: Regulating & Cultural services.
**Interpretation mean:** the diving performance (diving skills) & the script
**Target:** local divers & tourist- divers
**Season:** shoulder season & peak season

## 4. The ocean made Earth habitable
## 5. The ocean supports a great diversity of life and ecosystems

***Aquatic humans?***

**Topic:** Healthy connection with the water. Blue mind
**Extra bonus**: knowledge about the marine evolution.
**Main resource:** marine fossils/ ecological self - notion
**OL principle**: 4 & 5
**Ecosystem Services:** Supporting, Provisioning, Regulating & Cultural services.
**Interpretation mean:** the diving performance (diving skills) & the script
**Target:** local divers
**Season:** shoulder season

## 5. The ocean supports a great diversity of life and ecosystems

***The colours underwater***

**Topic:** Micro diving – Macro photography. Artistic gaze.
**Extra bonus**: Artistic techniques.
**Main resource:** marine biodiversity
**OL principle:** 5

**Ecosystem Services:** Supporting & Provisioning services.
**Interpretation mean:** local divers (taxonomy – photography – drawing)
/ tourist- divers: micro diving – nudibranchs
**Target:** local divers & tourist- divers
**Season:** shoulder season & peak season

## 6. The ocean and humans are inextricably interconnected

***The Mare Nostrum***

**Topic:** The relevance of the cradle of the Western Culture.
**Extra bonus:** The value of legends as knowledge transfer. Anthropological background
**Main resource:** history, intangible resource and the entire marine ecosystems. Universities (History and archaeology)
**OL principle:** 6
**Ecosystem Services:** Spiritual and Cultural wellbeing (Cultural services).
**Interpretation mean:** the script
**Target:** local divers& kids (with schools)
**Season:** shoulder season

## 6. The ocean and humans are inextricably interconnected

***Blue society: What can we do?***

**Topic:** Ocean citizenship/ citizen science
**Extra bonus:** to contribute to Sea Watchers Programme.
**Main resource:** the entire marine ecosystem
**OL principle:** 6
**Ecosystem Services:** Supporting & Provisioning services.
**Interpretation mean:** games/script/citizen science.
**Target:** local divers & tourist- divers
**Season:** shoulder season & peak season

**7. The ocean is largely unexplored**

***Cousteau's assistants***

**Topic:** Unknown world
**Extra bonus:** Citizen science. Sea Watchers Programme.
**Main resource:** The deep sea
**OL principle**: 7
**Ecosystem Services:** Supporting, Provisioning, Regulating & Cultural services.
**Interpretation mean:** technical diving with scientific games. Another approach is to work together on singular projects as technical assistants underwater (eg: underwater topography)
**Target:** local divers & tourist- divers
**Season:** shoulder season & peak season

Every program needs to be adapted to the potential and limitations of each diving centre; therefore, the next step is to show the different options which can be involved in this stream. This research study has confirmed that Mallorca has the potential to take part at all levels.

### 6.3.3.1 Grades of implementation

The 'Blue Brick Road' suggested in this chapter can be implemented at different levels according to the potential and limitations of each diving centre. Consequently, the next grades of implementation are suggested: conservative, informative, active, and committed (Fig n. 70).

Figure n.70: Grades of implementation


It is a model inspired by the participatory process of the project of Wild Atlantic Way in Ireland (Mottiar & Ryan, 2017). Taking again the most popular ecosystem in Mallorca waters, the interpretation program called '*Diving over the Mediterranean forest'* is shown as an example of this model. This time, the marine ecology of these meadows is the main topic; consequently, the scientific knowledge leads the narrative.

**3. The ocean is a major influence on weather and climate.**

***'Diving over the Mediterranean forests'***

The consulted scientists confirmed that the *Posidonia oceanica* meadows are a safe habitat for breeding (polychaetes, crustaceous), nursery; and shelter place. The beaches of Mallorca are formed by biogenic origin which means that the dead calcareous organisms form the sand. Therefore, the Posidonia meadows are also the habitat to catch these species and create the sand. Regarding Climate Change (Crisis), these meadows are a significant capacity for carbon storage. In addition, it can be considered as bio indicator of the pollution due to its fragility in waters under eutrophication, caused by human discharges (Principle 3 of Ocean Literacy). However, on the other hand, the staff highlight that the Posidonia could be a little bit monotonous for frequent divers. It is more than often that divers say that *'it is*

*only green grass '*. Consequently the challenge for each diving centre is to make diving over there be interesting. This study promotes that with a proper interpretation program, nothing is monotonous.

 **Conservative:** The use of the facilities to spread the word and encourage staff through the curiosity of divers. A simple intervention like a poster with a single message, '*Thanks, Posidonia!'* can generate questions among visitors and consequently pushing the self-learning to staff. For this, the staff has to have access to scientific knowledge about the ecological function of the marine meadows and hence, its importance in the entire local marine ecosystem. Particularly, as the main factor responsible for the crystal waters which divers enjoy.

**'Thanks, Posidonia!'**
**OL & ES:** n. 3 & Regulating
**Topic:** Ecological functions of Posidonia (crystal waters and reservoir of O2)
**Provider of row information:** Science
**Interpretation mean:** Poster in the diving facility
**Expected Outcome:** Encourage the staff to be trained as a result of the curiosity of divers. In addition, it is a contribution to the governmental and scientific goals.

 **Informative:** The inclusion of some messages on briefing/debriefing. Here storytelling is the technique to connect with the public as was explained before. In addition it is a suitable means to reveal the knowledge which lives in community and linking the experience with the locality. This marine plant has had multiple uses for the coastal populations such as material for the roofs or packing. The story of 'Roofs of Posidonia' joins the provisioning role of the biodiversity with the local culture of Mallorca.

**'Roofs of Posidonia'**
**OL & ES:** n. 6 & Provisioning
**Topic:** Different local uses of Posidonia
**Provider of row information:** Social organizations & Government.
**Interpretation mean:** The script of diving performance.
**Expected Outcome:** Feed the curiosity of divers to know more about the local community: cultural uses.

 **Active:** Being part of citizen science activities (e.g.: Sea Watchers Programme). The combination of the diving activity and scientific tasks let the diver explore the marine realm from a scientific perspective. This creates opportunities of dialogue with Science, its methods and objectives. As a result, the diver can understand the reasons for its conservation critical status. In addition, the frequent divers of Mallorca can discover other attributes of Posidonia, taking pictures of its blooming in May (shoulder season).

**'A rare bouquet '**
**OL & ES:** n. 5/ n.7 & Supporting
**Topic:** A plant in danger
**Provider of row information:** Science
**Interpretation mean:** Take pictures of Posidonia flowers for the Sea Watcher program.
**Expected Outcome:** Show the value of diving to science.

 **Committed:** The design of thematic diving (e.g.: Games). This type of trip requires higher efforts in the interpretation design. It must be a combination of diving skills; storytelling techniques; and scientific methods. The microdiving means patience and good knowledge about what to seek. To see the Posidonia meadows like that could be a true discovery.

**'The hidden life of the Posidonia'**
**OL & ES:** n. 5 & Supporting/ Provisioning
**Topic:** The biodiversity in the Posidonia meadows
**Provider of row information**: Science & Government**.**
**Interpretation mean:** A game to find the micro-biodiversity in the meadows**.**
**Expected Outcome:** Develop the skills for microdiving and the creation of the 'memory of the place'.

Regarding the role of stakeholders, this example of interpretative diving requires that,

- the social associations provide the cultural uses of Posidionia; and the scientific institutions of Mallorca may help to understand the ecological functions of this marine plant and ergo, its ecosystem services.
- At the same time, the local and regional government of this island would have to extend the notion of ecosystem services within society to feel empathy for its protection.
- For its part, the international certifiers would have the mission to include the Posidonia meadows in the diving material, as well as, developing the training of storytelling and other communicational techniques.

The diving centre, as the bridge with the place, would collect the local stories about the Posidonia in this coast. In this way, the interpreters would have the knowledge to promote the emotional domain with the plant; cognitive gain with the seeking of its biodiversity; and the development of normative domain regarding the issues with anchoring and caring their Posidonia coasts.

In conclusion, as a learning lesson, the entire structure has to be involved in this approach. This re-design of diving scenario opens the opportunity to the approach to a new market, one which appeals to cognitive explorers who seek the identity of places. Likewise, that 'sense of the place' is cultivated with the purpose to build up the memory of marine place in the divers and to develop a new blue narrative which transcends the wet suit. As with a big 'buddy system', the experimental shared and participative knowledge conducted in a constant change context is the path to stimulate insight-seekers. The active observer has to develop the connection with the place, to learn from it, know how it is 'breathing' and be aware when something is changed or wrong as SeaWatchers program promotes (fig.n.71 ). This type of gaze should be the way to dive. By developing proper knowledge (local ocean literacy) and skills, rather than the diver only seeing a vast blue space with some touch of colours, the scenario is now alive, full of life and stories.


*'I am observant diver'*

Figure n.71: Pin of Sea Watchers Programme

# Chapter 7. Conclusions

The objective of this last chapter is to summarise the knowledge produced in this study. The conclusions are guided by the research questions, with the aim to show the reflective process of the study. Therefore, the findings are illustrated at the beginning as way to establish the extent of Ocean Literacy in recreational diving in Mallorca. Subsequently, the second and third questions are approached together to explain the stakeholders and the suggested model to make effective the marine literacy with a purpose of ocean citizenship. Equally, as result of the entire study some academic contributions are highlighted.

The following narrative is enriched with the outcomes of participative strategy which the fieldwork of the study represents. The legacy impacts show the bridges built between the topic of the study and the diving community in Mallorca. Consequently, the personal growth of the researcher is included to share the personal gains of the study. This path finishes with suggestions for future research as way to overcome the limitations of this study and continue the path towards more sustainable marine leisure.

## 7.1 Conclusions of the project

*'I enjoyed because I know about the Ocean'* is a quote from the intensive work with the diving community of Mallorca which can define the main purpose of the present study. The central interest of this research was to explore knowledge transfer in diving experience as a contributor to greater empathy with the Ocean though the connection with the 'local seas'. Empathy is understood as comprehension; caring; and commitment.

To develop this scheme of understanding, ethnography of six months was conducted in the Spanish island of the Western Mediterranean Sea of Mallorca (the Balearic Islands). The entire community of diving activity was invited to take part in the analysis where the diving centre was the core of the picture, with their staff and divers as voice of the experience. Meanwhile the stakeholder framework in which the activity operated was examined including certifiers; associations; social organizations; and scientific institutions.

The incentive to begin the research about the state of art in marine literacy in underwater tourism was prompted by the ambiguous situation between the significant lack of marine knowledge within the society and the increasing interest in the blue space by the economy. A relationship defined by the lack of protection; overexploitation; and the misunderstandings of the vast territory named the '*forgotten space*' or *'missing context'* (Buchanan & Jeffery, 2017). Here the liquid boundaries and dimensions make it the victim of too many tragedies. The '*tragedy of commons'* of Hardin and the '*tragedy of open access'* by Lynch (both in Cater & Cater, 2007) are examples, but above all the tragedy highlighted in this study: the tragedy of 'blue blanket' horizon which hides the marine world to human eyes with a calm blue colour. Scuba diving breaks this imaginary line between two worlds with an embodiment without filters to tell what happening underneath the water. However, this is often through a language of saturated colours; big and exotic species and stunning scenes which clashes with the current language of the sea.

To improve this gaze, the educational stream of Ocean Literacy was selected as the vehicle to start the conversation about the current dialogue of the diving activity within Mallorca waters. A stream with seven principles which established the ground for a better understanding of particularities; encouraging discovery of those local marine stories in which the 'sense of the place' is based, promoted by the economy of experience. Taking this into account, the main question which guided the research was,

***How can underwater marine ecotourism contribute towards place-based marine environmental awareness through the Ocean Literacy?***

To answer this general question, the enquiry process was divided in three questions (see section 3.3). The first one led the exploration phase,

***How is the Ocean Literacy evidenced in underwater marine ecotourism at present?***

To that end, the study analysed the domains of feelings, knowledge, and social norms related to the Ocean and diving experience, with the following findings:

Diving activity is presently going through a transitional period, leaving behind its foundations as a niche sport and becoming a major tourism activity. However, the design of the touristic offer in Mallorca remains based on the sports approach, with a strong reliance

on international certifiers. Their knowledge services were still broken into courses, with special foci in exotic key ecosystems (such as corals). In this sense, the basic training material was analysed through the seven principles of the Ocean Literacy (see the subsection 4.3.2) in order to define the marine literacy in the diving path. The general conclusion was that all of them were covered to a limited degree with priority on those which can impact on the diving performance such as principle 2 and 3 related to the physical characteristics of the Ocean. However, the impact on divers was limited, showing an inconsistent message and more focused on the spectacular parts of the Ocean ecosystem (like sharks) as result of the business strategy.

The current industry marketing strategy is to travel to diving hot spots with an e-learning service, addressing the hyper connected market. An inactive professional association in Mallorca did not help the sector in working together and developing joint marketing strategies to overseas markets (their main target markets). In addition, the governmental vision was narrow, categorising it only as active/adventure tourism, but with a strict attempt to take over the official training from the sports perspective. Considered as a mature market, promotion of scuba diving was not a priority in the official agenda. The activity, therefore, manifested an unstructured management approach resulting from the lack of knowledge regarding dynamics of tourism.

This tourism can be defined by the factors or features which influence the diving experiences on Mallorca: the type of tourists (walk-in); marine biodiversity (encounters with big groups of fish) and seascape (active such as karst); sea conditions (transparency and warm temperature of waters); and the quality of services (staff). Diving in the island could be classified as nature tourism but not as ecotourism due to the absence of the true environmental awareness and place commitment in its structure. However, the divers often argued that '*diving gives you the experience to watch the marine environment first hand. We are witness of what there is underwater'*. This meant that the frustration amongst divers and practitioners could increase in a short period of time due to the lack of training to connect with this changed marine realm.

Regarding the diving offer itself, the activity analysed was characterised by having a similar experience. The certified divers could enjoy the dive experience in trips with single or

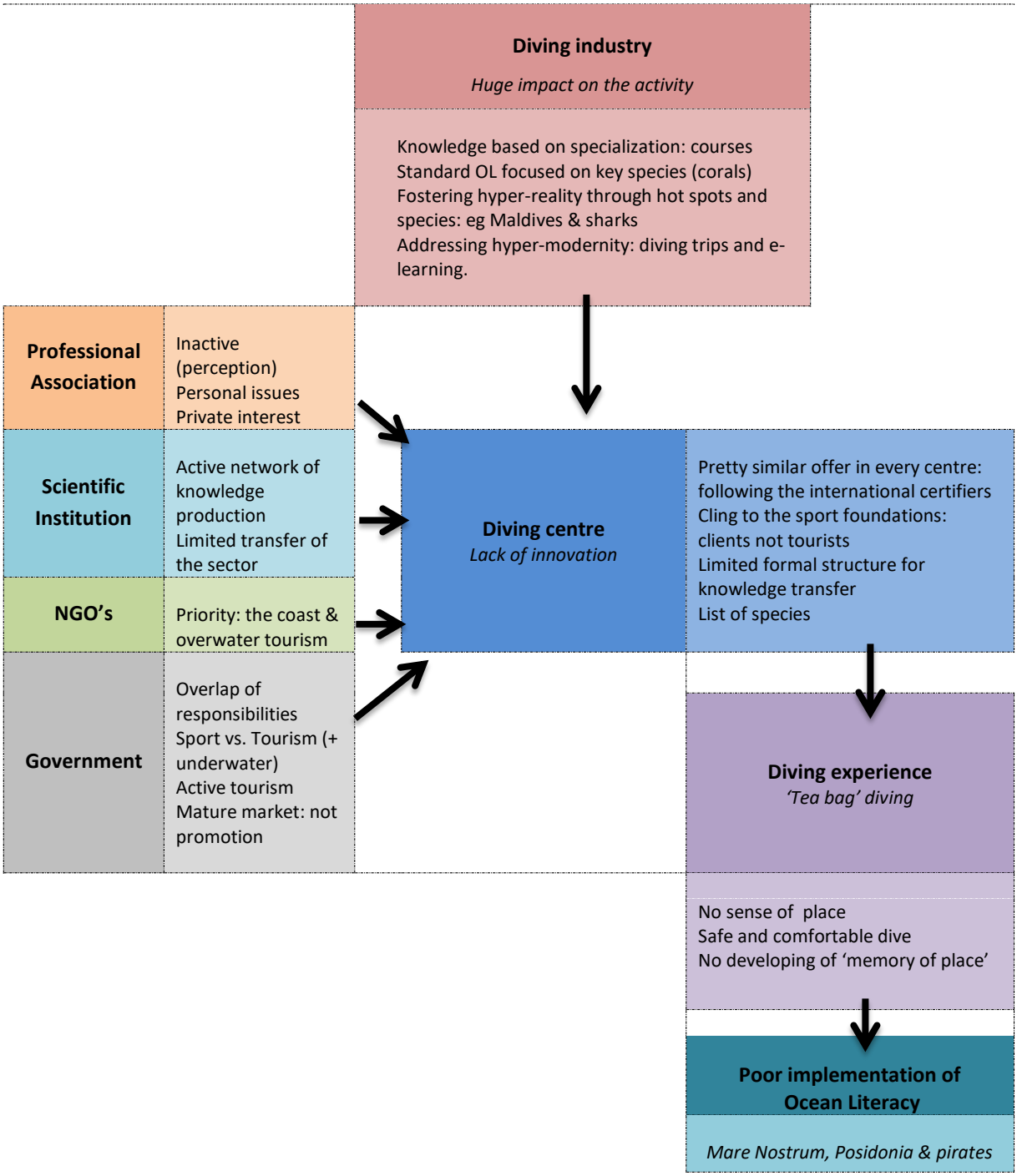
double dive, receiving a brief about the spot's itinerary, equipment and the guideline of a crew member (instructor or master guide). In addition snorkelling and try dives were the entry points to the underwater world. The diving product was mainly based on wildlife encounters. The distinguishing factor was the diving spot (seascape) and the biodiversity which was hosted. However, taking into account the oligotrophic characteristic of the Mediterranean and the growing loss of marine biodiversity globally, the design of the product is not sustainable. On the other hand, the diving centres designed their teaching services around the certification. The international certifiers have developed the training based on specialisation. The basic courses give way to the training in particular techniques such as cave diving; underwater photography or species identification. This design is a constant in the entire industry. At present, some of centres try to extend their offer with other water sports. In conclusion, the diving activity was still conceptualised as a sport, being only valued as such; and resulting in a limited and repetitive offer. As a certifier's officer reflected about the lack of innovation, '*there are no longer enthusiastic people and dreamers in this industry*'.

This sentiment could be explained because the staff often received poor training in communication/ interpretation techniques which help to understand the local specificities. Therefore, the structure was safe and comfortable for the diver but realising a fun, active and knowledgeable dive depended dramatically on the instructor. The local knowledge relied on the veteran or local member of staff, turning the *in situ* experience into the main source of knowledge. In addition, the role of dive master was underestimated as a guide of the place. As a result, the knowledge they provided about the dive site tended to be basic, unstructured, and often neither scientifically validated nor up to date. In this sense, the scientific network showed a limited knowledge transfer to the sector but with emerging citizen science initiatives (e.g.: Sea Watchers). Meanwhile, the conservation sector had a priority to avoid the destruction of the coastline and the impacts of overcrowded maritime tourism (e.g.: cruises or sailing), always focused on the land impacts.

This unstructured knowledge transfer impacted on the training of staff and the knowledge gained by dive tourists. For that reason, it was not a surprise that the divers (including the staff) confessed that their knowledge about the local sea usually came from other sources such as relatives; the internet; or movies. Further, the walk-in divers are involved in the

hypermodern context where their time pressures impede a truly aware connection and commitment to the experience of place (Varley & Semple, 2015). The experience is delivered without considering the emotional, cognitive and normative domain, turning it into what has been described as '*tea-bag diving*'. As such, the activity shows a poor implementation of ocean literacy with a near absence of '*sense of the place'* during the experience. The particularities of the Ocean (Principle 1 of Ocean Literacy: *The Earth has one big ocean with many features*) are not being revealed. Consequently, the memory of the place is not promoted towards the design of an ocean citizenship. Summary of the analysis is in the following figure n.72.

Figure n. 72: Analysis of diving structure in Mallorca, 2016




However, the study did observe an experience which still had potential to provoke an emotional connection with the marine environment (i.e. the 'wow-effect'). This was frequently supported by motivated staff who were emotionally connected to the oceans or, as they liked to be considered, 'water people'. Equally, the fieldwork verified that the

centres had facilities available to nurture that connection with Mallorca waters through interventions of Ocean Literacy & citizenship at different level of commitment (see subsection 6.3.1). This ground was reinforced by the green self-identity which the diving activity proclaims and the fieldwork in Mallorca confirmed. '*The more you dive the more environmentalists you become'* is a kind of 'mantra' within the industry. Although that image was developed without reflection (hence, its inconsistency, as identified), it was revealed as a significant driver to boost the activity towards place-based diving as part of current diver identity. As evidence, a recent example (a posteriori of the fieldwork) of that spirit of commitment has been the involvement of the diving activity in the protection of Posidonia meadows, echoing collective actions towards blue society. The diving centres of study have designed diving trips with scientific and environmental purpose, as illustrated in this website snapshot (Figure n.73). These are dives to collect information about the quality of Posidonia meadows as part of the scientific monitoring network.


Figure n. 73: Diving trip of citizen science about the health of Posidonia of one diving centre of the study. Mallorca, 2017

This example highlights the significant role of stakeholders in this transition. Mallorca showed an active network of knowledge production on the island, formed by scientific institutions, social groups and government departments, ready to be part of the knowledge

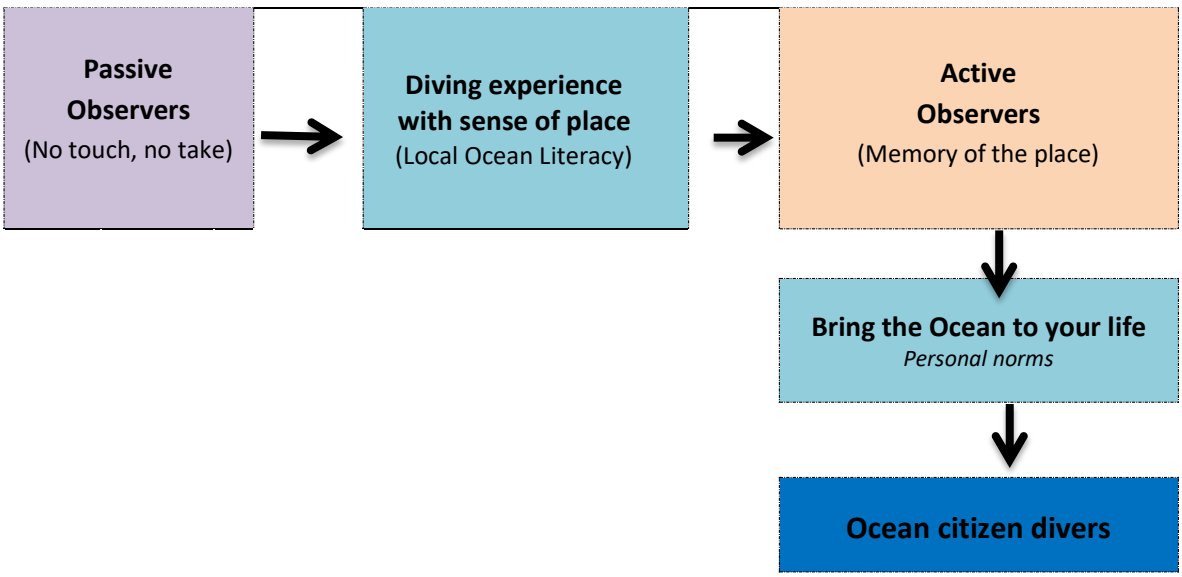
transfer. These organizations expressed their awareness of the importance of that transfer to other socio-economic sectors; therefore, they stated their interest in exploring different knowledge strategies.

This does mean that the Ocean Literacy & citizenship has a proper ground to be promoted in the recreational diving in Mallorca as a cross-cutting approach for the entire structure. In promoting first-hand experiences of the ocean, the diving experience is based on 'what you see', so with the required support, it has the potential to help in understanding what is seen towards increased ocean literacy and its evolution towards ocean citizenship. Thus, as a result of this enquiry process, the study formulated the following research questions,

> ***What is the tourism stakeholder framework for developing an effective Ocean Literacy strategy?***; and consequently, ***How should an underwater marine ecotourism product develop the Ocean Literacy approach?***

To answer the second and third research questions, the study suggests the diving addresses a transition from passive to active observant diver (Fig. n 74) with a solid support of the stakeholders' network. To that end, the activity has to be designed to attract divers with biospheric and social-altruist values whose motivation is related to insight-seeking, and where they feel comfortable in an ecotourism framework reinforced with the sense of place.

Figure n.74: Analysis of diving structure in Mallorca, 2016



To develop this insight-seekers scheme with a commitment with the blue space, the activity needs a change of mind-set. In this sense, combining the philosophy of ecotourism with emphasis on the marine care; the inclusion of local sea heritage; and the local and scientific knowledge; embedded in a suitable framework to design diving with Ocean Literacy & citizenship.

### *7.1.1 Diving trip with Ocean Literacy & citizenship*

The first step is the design of ad-hoc diving experience which allows that connection and commitment. Therefore the challenge is to design an active experimentation through reflective observation based on the given narratives (by staff or facilities). The proposed model is based on the emotional, cognitive and normative domains where the approach requires the adoption of the cycle of experiential engagement (Kolb, 1984). The diving experience with Ocean Literacy and citizenship allows reflective observation regarding the current marine realm through emotions. With the proper guidance of the staff for local marine literacy, the diver builds their conceptualisation of the marine realm. In this way, the experimentation becomes more active, ready for this 'changing' marine world.

- *How you feel 'down there'* is the leitmotiv for the emotional domain. The development of the notion of the ecological-self allows the connection with the marine realm.
- *What the Ocean is doing for you* guides the cognitive domain. The introduction of the scheme of ecosystem services allows a more relevant discussion through the thinking system of actions-consequences.
- *What the Ocean is saying to you* leads the normative domain. The critical thinking is encouraged through the analysis of the local marine environmental issues.

Consequently, the message provided to the diver has to gather these three domains.

Regarding this challenge, the knowledge to connect has traditionally been approached by the industry only through ecological knowledge such as lists of species or main key ecosystems. Yet, the Ocean Literacy opens the possibility to enrich this element with a narrative which endorses the marine realm through its human journey, understood as the fourth dimensionality of the Ocean (Court, 2012). The socio-historical link with the local sea; our dependency through the ecosystem services; and their environmental issues are the

main narratives, taking the sixth principle of the stream (*The ocean and humans are inextricably interconnected*) as the storyline. As a result, this literacy approach conveyed through the bond with blue humanities (feelings of belonging), along with normative (awareness of the consequences and feelings of responsibility) purposes can promote the entire spectrum of benefits from nature. In this respect, the Ocean Literacy approach fosters the broad values of nature, including non-economic uses, explained above (see Fig.n.5 in the subsection 2.2). Concerning this, the value of the diving activity can be represented by the indirect value through its role of ocean speaker and safeguard the health of the ecosystem due to the ability to be witness and explorer of their inner ecological characteristics. On the other hand, the diving contribution towards non-use values of the seas can be reflected by the role of supporter of marine reserves as existence value; guardians of marine realm for the society as bequest value; and assistants of marine citizen science for future knowledge as option value. As a result, this type of recreational experience entails a change of primary beliefs which can be addressed towards more biospheric values (values fostered by deep ecology); and contribute to the trend towards a pro-environmental society. Consequently, a new attitude is promoted to trigger the adoption of a commitment with the marine realm (ocean citizenship) through individual and collective behaviour change (widely discussed in the subsection 2.5).

However, to face this challenge, this formula has to consider the playful character of the diving to integrate these elements in the recreational scope. '*Dive is fun'* (slogan of PADI) is a clear message within the industry which reflects that having fun is a priority. Therefore, every change in its operation should be under the umbrella of entertainment. Considering the literacy approach, the infotainment is the strategy; enriched with thematic programs of TORE framework (Ham, 2013) within a scheme of active participation.

On this point, the relevance of information is a critical factor. The fieldwork highlighted that the divers as experimental learners need guidance (clues and tips); positive messages (to remove the blame and increase the hope); and a special attention to the beauty interface (the diving observation) to open the channels of the dialogue with the marine realm. These requirements must be considered by the interpretation strategy at all domains. Guided by persuasive communication, the interpretative interventions can deal with a poor cognitive process of diver via the central route or a low individual motivation (scope of the peripheral

route, as widely explained in the exploration of behaviour change (see subsection 2.6.4.1). To improve these situations, the dive master must be promoted as the guide of the experience (meanwhile the instructor is in charge of the teaching offer). Consequently, the training scheme must be reformulated. The diving industry has to include skills related to tourism, communication and interpretation in the staff training, as well as techniques to manage emotional labour. The staff has to become a provocative interpreter with a social normative agenda, which guide the path of discovery of committed divers. In this regard, the Ocean Literacy approach in the activity suggests the diving centres to go beyond, recruiting outside the 'sporty' experiential staff profile. Instructors and dive masters with other skills such as being a good communicator, designer of strategies or being aware of the local knowledge would be useful to these strategies. The importance of the new type of staff is critical because they must be the architect of any change in the activity.

In this sense, during the experience in Mallorca, the debate about the implementation of these interpretative interventions for the literacy approach was on the table. The consulted divers (mainly staff) argued that Ocean Literacy could be more suitable for certified divers who can be more aware of the underwater surroundings; following the theory of specialization of Scott & Shafer (2001 cited in Huang, 2014). However, the study suggests the appropriateness to include the Ocean Literacy & citizenship at early stages in the diving route. The diving in shallow waters such as snorkelling was where the most of divers built their most rooted perceptions of the sea. Therefore, it is urgent to take the control of the information transfer at these basic stages to reduce misunderstandings. Likewise, the strategy can approach local divers in order to develop place attachment through their place identity. This approach contributes to expanding the diving offer for locals, showing their places in depth. At the same time, the local divers may participate in the activity longer, exploring their frequent diving spots from new perspectives. Maybe this is the key to attracting these local divers after diving trips in exotic places which was revealed as a significant concern by certifiers. According to these certifiers, local divers are reluctant to keep diving in their home places which means a significant economic leak for the sector. Therefore, as a conclusion, the recipe for Mallorca could be to attract the novice to learn how to dive, meanwhile to show the certified divers another way to live diving through micro diving and active diving.

To sum up, by integrating all of the interpretation channels - facilities; experience; and staff expertise - the commitment is reinforced with the place attachment based on dependency (the ecosystem services) and (eco) identity with the place. The dependence is fed by quality of service; accessibility to the marine realm (frequency); and resources (how to show the marine realm). Meanwhile, identity is developed through the meaning and feeling of belonging to the Mediterranean Sea in order to strengthen the interest in that local sea. The Ocean Literacy stream remembers this global-local connection in its first principle: *The Earth has one big ocean with many features.*

### *7.1.2 Stakeholder recommendations*

To offer this diving experience through marine literacy, the entire system plays a key role. All of the stakeholders are or can be providers of services for the diving offer. Mass tourism cannot be transformed into ecotourism with Ocean Literacy & citizenship without the support of these stakeholders. The values of ecotourism include significant environmental, scientific, and other socioeconomic contributions. However, amongst all of them, perhaps the most important outcome is the potential to share knowledge with visitors. Therefore, the development of the tourism narrative must be a joint labour. Here, some recommendations are shown with the aim to improve the model and invite these actors to transform our leisure time in our seas.

- Government is understood as the main supervisor of the marine experience and co-facilitator of this dialogue with the local sea. The study has highlighted the need to be more involved in the diving challenges such as marketing or operational conflicts. As steps in this direction, the study suggested that this actor approaches the activity to understand its dynamics and relationship with tourism with the aim that its socio-economic significance is reflected in the governmental scheme. Equally, in practical terms, these official entities can lead the development of codes of conduct - operational in the marine settings- as way to establish the general rules, in collaboration with the other actors.

- The international and national certifiers are introduced in this challenge as main trainers. Consequently, the model requires that they reinforce the marine literacy and ocean commitment in their training schemes and develop particular case material focusing on the Western Mediterranean Sea. The study demonstrates that the local seas of Europe (one of the most important diving communities) should receive special attention to avoid the leaks of the activity. This model shows them that diving in the backyard can be a meaningful experience.

- The scientific institutions are the main translators of the knowledge hosted in the Ocean. Therefore, they are an important actor of this approach to build a narrative with rigorous and up to date knowledge about the local seas (e.g. ecology and history) and their impacts globally. The study supports their citizen science initiatives as the channel of this communication. However, an urgent request resulting from this study: the sea crisis demands that the outreach services of these institutions begin to consider socio-economic activities like the tourism including the diving activity more carefully. The scientific message is not reaching the wetsuits (divers) which are the front - line witnesses of the marine realm.

- The social organizations, for their part, are the other translator, lobbying the entire structure with local cutting edge socio-environmental issues. In their role of translators they must facilitate the socio-cultural relationship with the local sea. This information together with critical issues related to this sea must be part of the new diving script. The purpose is to encourage a participative dialogue to build the set of good practices beyond the wetsuit (diving activity) as wider contributions to ocean citizenship. Equally, these best practices and codes of conduct, led by the government, must be part of their contribution. In this sense, the study has been witness to the positive impact of these collective efforts to change the social mind with the example of the protection of the Posidonia in Mallorca waters. This is a good reference case to mimic elsewhere.

- The professional association of diving centres is another structural actor as the main supporter of the activity. The study suggests that the association has to become the local centre of training, particularly regarding the inclusion of place identity. Likewise,

joint promotion must be a priority. To encourage this united path, the study highlights that the diving sector can be an important driver for the new blue growth.

To sum up, this study has illustrated a business model where the activity is the vehicle to be part of something bigger in terms of social change and sustainability. The narrative is the channel to intertwine all the elements in generating a product that is unique and innovative as a result of its local foundations. Consequently, this general framework could be extrapolated from this case study to be implemented in other marine tourism activities. Equally, some academic contributions have emerged as result of the development of this suggested model, which are presented following.

## 7.2 Academic Contributions

Strategically this study promotes the development of ecotourism philosophy in any nature-based setting. Mallorca is a destination of mass tourism whereby lack of local factor does not usually allow us to implement the hard version of ecotourism described by Weaver (2005) (see the characteristics of Fig.9: section 2.4). The deep connection with the nature through personal experience is sacrificed in the standard format to enjoy their waters. However, this study has confirmed that proper interpretation services can awaken the interest in deeper connection with the ocean for traditional tourists. The diving performance is conducive to begin a dialogue between staff and diver because of the buddy system; and with the surroundings because of their particular characteristics, - ' *the world switch off down there*' -due to the fact that it is a deeply somatic activity. Therefore, although the boat is crowed, an offer fitted to the market of Mallorca (motivations) and to Mallorca the island (sense of place) can move the activity from soft ecotourism to hard ecotourism, at least at an individual and personal emotional connection.

The second contribution, and the core of this academic effort, is to make the sense of place central to the diving experience. The study highlighted the power of the place identity to impact on the behaviour (Whitmarsh & O'Neill, 2010); and the influence of place meaning and place attachment (Kyle et al., 2004) to connect and build a narrative where the local sea is the main character of the experience. With these components, the diving activity is more

closely related to tourism, leaving its more sporty characteristics behind. This leads us to approach the third contribution: the development of memory of place related to the marine realm.

The Ocean requires us to change our mind set to adapt the theoretical framework to the marine characteristics. The traditional apathy for the sea in the society has impacted on scholarly production; therefore, the recommendations from other frameworks must be adapted to make up for our lack of marine knowledge. This situation is reflected, for example, in the style of interpretation which is suggested. Scholars recommend the hybrid of different types of interpretation: being provocative, informative and entertaining (Ham 2013; Keirle, 2003). This implies that the marine interpretative products have to be developed through solid informative process to understand better those marine settings. Likewise, when the resource to interpret is the Ocean, the interpreter has to include the normative information in their performance to help the diver to connect with the marine realm. Regarding the Ocean, these best practices are more important than usual because of the lack of place record. Consequently, the memory of place is a concept to consider in any study related to the sea.

The final contribution is in the line with this aim. The study chose the educational stream of Ocean Literacy, developed in a joint effort between the educational community and scientific world, as vehicle to introduce the importance of marine knowledge (see the subsection 1.2). However considering the environmental crisis and in the words of the interpreter Ham (2013), the knowledge transfer cannot be empty of purpose. Consequently, along the study, Ocean Literacy has usually been linked with the notion of Ocean citizenship as a natural union which feeds back each other. Ocean citizenship does have purpose, in promoting actions that contribute towards the more sustainable use of our ocean resources (Fletcher & Potts, 2007).

This summarises the main academic contributions of this study with the integration and/or adaptation of some theoretical concepts to the diving context.

## 7.3 Legacy impacts of the research study

Further to the above, this project with the diving community of Mallorca and the marine stakeholder network generated significant identifiable impacts which are presented in the following.

At the beginning of the fieldwork, the research study wanted to develop a win-win relationship with the actors involved. To achieve this aim, the structure of the industry was always in mind. One of the tasks assumed by this research was to map the stakeholder network which can be the driver to move the diving activity to another level. The strategy was to define the communication channels towards the diving centre. The expected gain for the centres was to gain joint marketing in order to develop more efficient actions addressed to the wide tourism market of Mallorca. The contacts made during the fieldwork were shared with the managers of diving centres for the creation of these liaisons. As a result, the research study worked as a speaker of the diving activity within the science; social organizations; and government. One significant outcome of this labour was the solid relationship between the diving centres of the study and the Sea Watchers program. During the event of this citizen science program in Mallorca, the diving sector was the special guest, being named ' Observatory Centre' (Centros Centinela in Spanish) (Figure n.75 and n. 76) and this study was recognized as the bridge for this collaboration.


Figure n. 75: Staff of diving centres with the Observatory certificate of SeaWatcher's program. Mallorca, 2016.


Figure n. 76: Staff of diving centres with the Observatory certificate of SeaWatcher's program. Mallorca, 2016.

In the daily routine of the diving centres, this relationship has spread towards the script to divers and the information services in the facilities (Figures n. 77 and n. 78).


Figure n. 77: Sea Watcher's posters about invasive species in the Western Mediterranean Sea in the diving centres of the study. Mallorca, 2016


Figure n. 78: Sea Watcher's posters about invasive species in the Western Mediterranean Sea in the diving centres of the study. Mallorca, 2016.

Equally, the study helped to promote marine literacy among staff of these diving centres, developing some 'work meetings' to analyse the facilities in Ocean Literacy & citizenship terms. As a result, small interventions in the facilities were implemented such as the design of their own posters about local ecology (e.g.: Posidonia meadows) (Figure n. 79); including the concept in their merchandising (Figure n. 80); and diving activities.

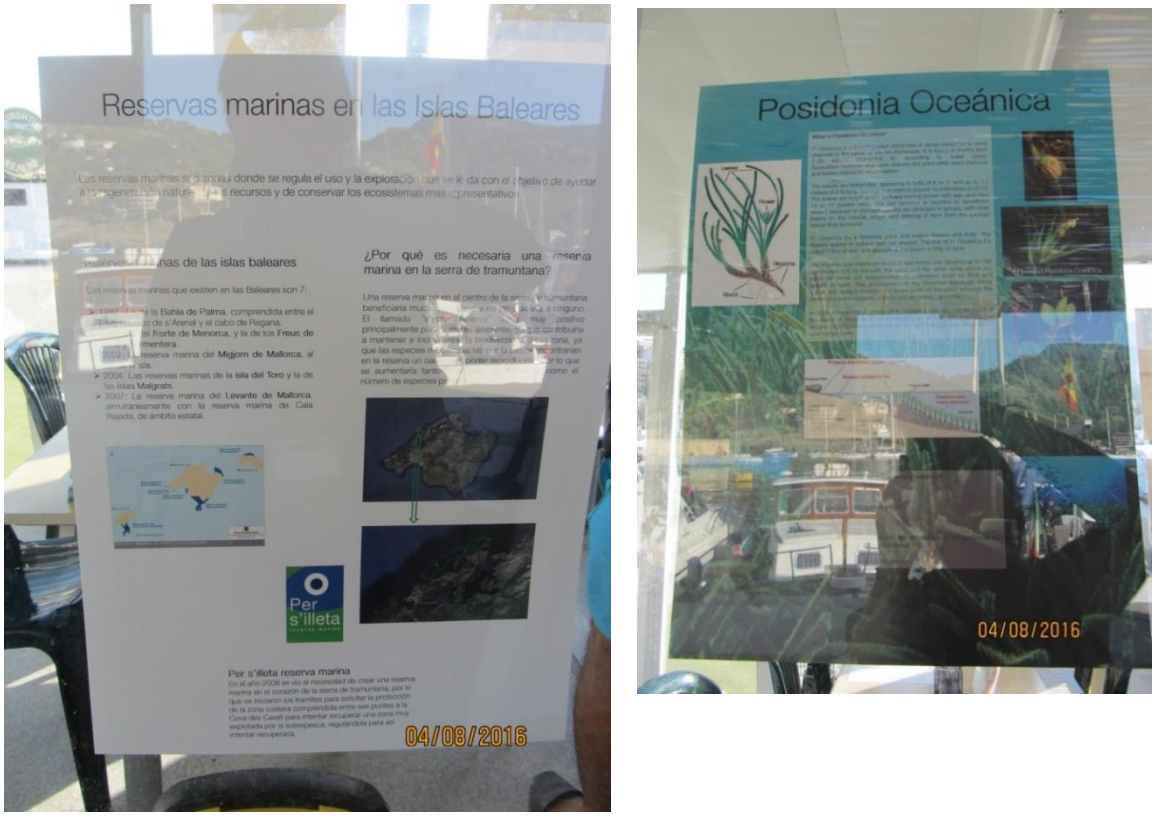



Figure n. 79: Posters about the Marine Reserves in the Balearic Islands and the ecology of the Posidonia in one of diving centres of the study, Mallorca, 2016

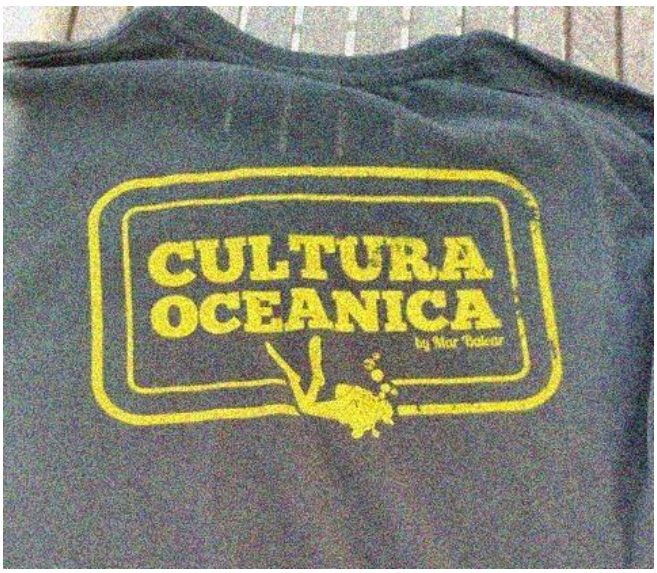



Figure n. 80: T-shirts with the notion of Ocean Literacy (in Spanish) as merchandising of one diving centre of the study in following the season, 2017.

Similarly, the interactions and material spread about the approach in the project allowed that the following year, the Palma Aquarium based its annual environmental education

program for schools of Mallorca on ocean literacy. Its tenth anniversary was the backdrop to extend the concept of marine literacy in the island (Figure n. 81).


Figure n. 81: 2017/2018. Environmental Education Program: Ocean Literacy. Palma Aquarium (2017).

For its part, the scientific institutions also were attracted by this notion, reflected in the design of a proposal about scientific outreach by some researchers named '*Science has landed in Balearic Islands: Best practices for marine conservation in the Balearic shoreline*' (draft for FECYT of Anita Bonilla & Laura Royo). The objective here was to involve the scientific community into the development of environmentally responsible behaviour with the local sea. The framework studied in this research study was part of the approach of the above scientific proposal.

To sum up, the communication with the stakeholders contributed to establish bridges between the ocean literacy and their fields. Likewise, the diving activity gave small steps towards the Ocean Literacy & citizenship, leaving an imprint in their mind-set.

## 7.4 My personal trip

Figure n. 82: The researcher in a diving trip, Mallorca 2016.
Photo credit: Soller divers

These words are intended to show my professional growth as researcher. In this sense, my main gain can be summarised as solid theoretical development. The theories about the motivations, behaviours and persuasive communication have enriched my professional base to understand better the socio-environmental dynamics of this sector. Equally, the method chosen gave me the opportunity to strength my skills to work on the ground. Ethnographic research is an intensive occupation; the shared hours with the actors of the research improved communication techniques such as interviews, and above all the observation technique matured. The ability to reflect through observation gets significant outcomes during the empirical stage; therefore it is argued that its value should be increased within qualitative research.

On other hand, the empirical process meant to overcome some challenges related to the particular case study. Ethnographies with emic focus need to have a solid relationship with people involved to transfer their voice to the study. However, at the beginning this wasn't the case because I was new in the recreational diving in Mallorca. Therefore I had to invest time and effort in building a relationship confident to comprehend and replicate that voice.

The result has been shown in the previous section (7.3) with a proper integration in the diving activity in the island.

Similarly, the approach of the study was mostly new to this marine business. As a consequence, I had again to make an extra effort to be pedagogical in explaining clearly about the Ocean Literacy stream and its potential to move the activity to next level. In this sense, the format of seven principles was decisive. However, the rigid structure and solid habits of the diving performance sometimes became significant barriers to encourage the staff with this view and think together feasible ways to implement it. Yet, all of these challenges were overcome with time, patience and hard work, and the result was an unforgettable experience with a great deal of shared knowledge.

To sum up, this study has allowed me to develop as a 'philosophic practitioner' as Tribe (2002) argues; and to identify with a solid combination of theory and practice in my current professional background.

## 7.5 Future research

This study was designed as the first step to understand the combination of marine literacy and recreational diving. To define the foundations of that relationship, in depth qualitative research was required. However, future research must be conducted to strengthen the emerging findings of this body of work.

Future research with an action research and longitudinal design is desirable to evaluate the hypothesis supported by this research study: the Ocean Literacy & citizenship approach is beneficial for the future of recreational diving. An empirical phase, with similar interventions to be described in the chapter 6, should evaluate the impacts of the approach on the diving activity. To achieve this aim, the research scheme must include a longitudinal perspective of several diving seasons which allow diving centres involved to evolve from conservative to committed grade of implementation (see the subsection 6.3.3.1). This progress would allow measurement of the changes in detail; and would identify and overcome the logistical and psychological barriers to sustainable transformation of the activity. Concurrently, studies that collect information are required to access to a wider

diving market than this study. In this respect, two areas lack information which were identified during this fieldwork and deserve priority attention. Knowing the baseline of the marine knowledge is critical for the entire approach. This previous knowledge of divers has to be understood in depth through mixed methods to allow identifying rooted marine knowledge; and confirming or rejecting the popular perceptions and misunderstandings. The three domains of the study: the feelings regarding their local seas; the knowledge about them (including the baseline regarding each principle of the Ocean Literacy stream); and their social norms related to the blue space must be identified accurately. This gathered knowledge would be the ground for further interpretative interventions and the strategies to work with the knowledge owners such as scientific institutions and social organizations. Further lack of information identified in the study, was the push and pull factors of the diver's motivations (Dann, 1977). Again, additional enquiry about the reasons to include diving in their lives can contribute to define the place meaning (Wynveen, 2012) and place attachment (Kyle et al., 2004) regarding the Ocean in order to shape the blue mind set of diving community. This knowledge would be significant for governmental strategies related to the promotion of blue society in their governance at local and regional level.

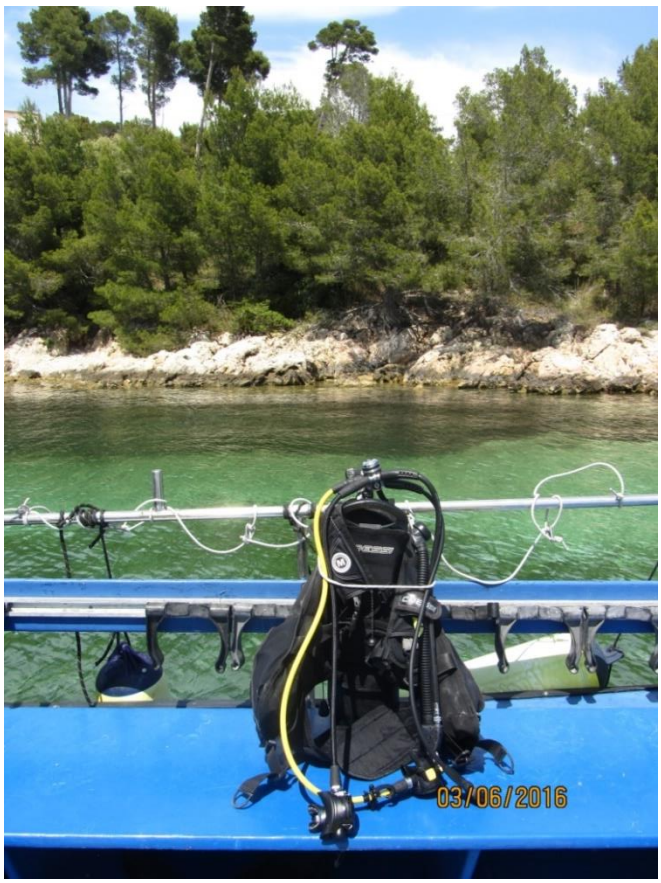



Figure n. 83: diving in Mallorca, season 2016

Equally, knowing the factors involved in diving destination choice; and the diving activity in their holidays is valuable information for the marketing efforts of the entire industry, as well as the support of the international governmental strategies. The pull factors which define the image of the destination (Uysal & Jurowski, 1994) would explain the success of the destination management conducted by the authorities.

Likewise, the incorporation of the contribution of personal factors referred to diving in that place as the push factors, could update the significance of the diving activity in the economic development in the region. In addition, at a local level, the diving centre could be impacted positively by the design of set of innovations towards particular niches (e.g.: born-ecotourists suggested by Luo & Deng, 2007) or by the offer of new products that fulfil these push factors.

Lastly, the certifiers of the diving activity deserve special attention because of their impact on the entire activity. While the international certifiers have recently made significant efforts to update the entire training system of diving, they still have not developed a place-based system. The suggestions of this study could be an important improvement to develop the place attachment of the diver with their local seas which is one of the main concerns of the entire industry: how to promote the diving in their backyard, to avoid the constant leak of the activity. In this direction, it is also recommended to further research message-development and its impact on creation of new beliefs; promotion of attitude and intentions towards ocean citizenship as supported by models such as the Recreation Experience model (Ballantyne et al., 2011).

In conclusion, Ocean literacy & citizenship offers the path to develop a relevant dialogue with the seas of twenty first century which attracts society to discover our shared past, present and future and shape a proper collective memory of the *'forgotten space'*.

The Blue planet still has many stories to tell.

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# Appendices

# Appendix 1: New Ecological Paradigm (NEP) Scale

1. We are approaching the limit of the number of people the Earth can support.
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do not make the Earth unliveable.
5. Humans are seriously abusing the environment.
6. The Earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11. The Earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

Legend:

Reality of limits to growth (1, 6, 11)
Antianthropocentrism (2, 7, 12)
Fragility of nature's balance (3, 8, 13)
Rejection of exemptionalism (4, 9, 14)
Possibility of an ecocrisis (5, 10, 15).

Interpretation: The seven even numbered items, if agreed to by a respondent, are meant to represent statements endorsed by the Dominant Social Paradigm (DSP). The eight odd items, if agreed to by a respondent, are meant to reflect endorsement of the new environmental paradigm (NEP).

Source: Source: Dunlap et al. (2000) cited in Anderson, 2012: 261)

# Appendix 2: Crew´s Interview - Pre-season. First draft

## Section 1: About the crew member

***Sociodemographic characteristics***

Please note **gender**

***1.*** 1 ☐ Female 2 ☐ Male

**2.** Where are you from?

1 Country …… City ……

2 ☐ Close to the coast? Where? ……

**3.** Where do you normally live?

1 Country …… City ……

2 ☐ Close to the coast? Where? ……

**4. How old are you?**

1 ☐ 16-24 2 ☐ 25-34 3 ☐ 35-44 4 ☐ 45-54 5 ☐ 55-64

6 ☐ 65+ 7 ☐ Prefer not to say

**5. Education background**. Indicate the highest educational attainment

1 ☐ Primary school 2 ☐ Secondary school

3 ☐ College qualification 4 ☐ University

5 ☐ Postgraduate degree 6 ☐ Other State ……

**Title** ……

## Section 2: Diving job

***Professional background scenario***

6. **With which diving centre are you working?** And since when?
7. **Have you ever worked in (marine) tourism before?** Where and when?
8. **What is your role in that diving centre?**
9. Let's talk about your job: How is your job? Activities and responsibilities
   **Can you describe your day-to-day tasks in organising a boat trip? ('O' organizational)**

Check: I have to polish after participant observation on boats

- ✓ Reception of tourist group
- ✓ Prepare the equipment
- ✓ Briefing:
  - Operation: script and stops
  - Potential wildlife in the dive spot
- ✓ On board : security talk
- ✓ Boat trip until dive spot
- ✓ Put the equipment
- ✓ Dive
- ✓ Return boat trip
- ✓ Docked to harbour
- ✓ Debriefing

10. **What kind of training have you received in dealing with visitors?**
    (title/institution/dates)
11. **Do you think this training has been crucial for your job with this operator?**
12. **Are you member of any professional association?** (tourism, conservation, other)

***Motivations and psychological characteristics***

13. Why did you decided to work as a diver? How did you end up working in Mallorca? And in this specific centre?

**14.** Are you happy with your job? What is your favourite part? And your worst part? Strong and weak points. How would you improve it? From perspective of information providing service.

***Interactions with tourist***

**15. When do you have to interact with tourist during your job? How do you feel about this interaction?**

**16. How do you handle the expectation of tourist? (script-proximity-good code)**

- ✓ Over water
- ✓ Under water

**17. According to your experience, when do tourists have more fun? ('E' enjoyable)**

- ✓ Over water
- ✓ Under water

Watching specific animal or diving area: Which one and where.

## Section 3: Environmental concern

***Normative domain***

**18. Use the NEP Scale to talk about their environmental concern.** Choose five of them and tell me what you think about them. **What is it interesting about the marine environmental issues? What is it important about the marine environmental issues?** Are they included in your guiding speech? Do you think that your tourists think about it like you? ('R' relevant)

**19. How is your environmental behaviour during your daily routine?** Any pro-environmental action? Specifically related the Ocean? Member of any NGO or Association?

**20.** Do you use this information in your diving performance as as instructor/ dive master or skipper? How? Which kind of information related to the pro-environmental actions do you deliver to tourists?
**How do you think you can encourage tourists to become an ocean citizen?**

## Section 4: Relationship with the Ocean

***Emotional domain***

**21.** How and when was your first relationship with the Ocean? Something special?

**What does Ocean mean for you? How is the Ocean for you?**

**22.** How do you see yourself underwater? To explore the concept of the ecological-self.

## Section 5: Ocean literacy

***Cognitive domain***

**23. What do you know about the Ocean?**

**Use the Ocean Literacy to talk about what happens with the Ocean.**

Do you know what's going on with the Ocean? With the Mediterranean? And the Toro reserve? Where does your knowledge about it come from? How do you update the information about it?

**24. What is the Ocean doing for you? (Ecosystem services)**

**25. Have you ever taken part into surveys related to wildlife?** (organization-frequency-role)

***Interpretation on board***

**26.** Which kind of messages do you delivered to tourists? ('T' thematic)

**27.** Which kind of questions do tourists usually ask you during the trip? In a particular spot? Information seeking.

**28.** Which one do you think it is the most common perception that tourists have about diving in this protected area?

# Appendix 3: Crew´s Interview - Pre-season. Final version

**Changes from pilot project**

Some of them unified like the question n.11 which was included in the question n. 10. Therefore, in the final version was referred to the n.10. It meant that the numbers were altered in the last version. Others were reworded, but the question n.17 was which changed significantly, adapting to the reality of the diving performance (the n. 16 in this appendix).

**According to your experience, when do tourists have more fun? ('E' enjoyable)**

- ✓ During the courses (open water, advance and so on) and in which part of them?
- ✓ During the 'fun dives' for only certificated divers. And when?

**Watching specific animal or diving area: Which one and where**

On the other hand, the reflective process about Ocean Literacy stated by the interview drove a question about its implementation, the question n.23 in this last version: '***Do you think the Ocean Literacy could be implemented in the diving centre performance?'***

## Guideline of questions

### Section 1: About the crew member

***Sociodemographic characteristics***

*Interviewer please note **gender**.*

1. ☐ Female ☐ Male
2. Where are you from?

   1 Country …… City ……

   2 ☐ Close to the coast? Where? ……..

3. Where do you normally live?

   1 Country …… City ……

   2 ☐ Close to the coast? Where? ……..

4. **How old are you? Note the age bracket**

   1 ☐ 16-24 2 ☐ 25-34 3 ☐ 35-44 4 ☐ 45-54 5 ☐ 55-64

   6 ☐ 65+ 7 ☐ Prefer not to say

5. **Education background. Indicate the highest educational attainment**

   1 ☐ Primary school 2 ☐ Secondary school

   3 ☐ College qualification 4 ☐ University

   5 ☐ Postgraduate degree 6☐ Other State …….

   **Title** ……

### Section 2: Diving job

***Professional background scenario***

6. **With which diving centre are you working? And since when?**
7. **Have you ever worked in (marine) tourism before? Where and when?**
8. **What is your role in that diving centre?**
9. Let's talk about your job: How is your job? **Activities and responsibilities**

   **Can you describe your day-to-day tasks in organising a boat trip? ('O' organizational)**

- ✓ Reception of tourist group
- ✓ Prepare the equipment
- ✓ Briefing:
  - Operation: script and stops
  - Potential wildlife in the dive spot
- ✓ On board : security talk
- ✓ Boat trip until dive spot
- ✓ Put the equipment
- ✓ Dive
- ✓ Return boat trip
- ✓ Docked to harbour
- ✓ Debriefing

10. **What kind of training have you received in dealing with visitors?** (title/institution/dates)
    **Do you think this training has been crucial for your job with this operator?**
11. **Are you member of any professional association?** (tourism, conservation, other)

***Motivations and psychological characteristics***

12. Why did you decided to work as an instructor/dive master and skipper? How did you end up working in Mallorca? And in this specific centre?
13. **Are you happy with your job?** What is your favourite part? And your worst part? Strong and weak points. How would you improve it? **From perspective of information providing service.**

***Interactions with tourist***

14. **When do you have to interact with tourists during your job? How do you feel about this interaction?**

15. **How do you handle the expectation of tourist? (script-proximity-good code)**
    - ✓ Over water
    - ✓ Under water

16. **According to your experience, when do tourists have more fun? ('E' enjoyable)**
    - ✓ During the courses (open water, advance and so on) and in which part of them?
    - ✓ During the 'fun dives' for only certificated divers. And when?

    **Watching specific animal or diving area: Which one and where**

## Section 3: Environmental concern

***Normative domain***

17. Use the NEP Scale to talk about their environmental concern. Choose five of them and tell me what you think about them. What is it interesting about the marine environmental issues? What is it important about the marine environmental issues? Are they included in your guiding briefing? Do you think that your tourists think about it like you? ('R' relevant)
18. **What is your environmental behaviour during your daily routine?** Any pro-environmental action? Specifically related the Ocean? Member of any NGO or Association?
19. **Do you use this information in your activities as instructor/ dive master or skipper?** How? Which kind of information related to the pro-environmental actions do you deliver to tourists? How do you think you can encourage tourists to become ocean citizens?

## Section 4: Relationship with the Ocean

***Emotional domain***

20. **How and when did you first personally experience the Ocean?** Something special? **What does Ocean mean to you today? How is the Ocean for you?**

21. How do you see yourself underwater? To explore the concept of the ecological-self.

## Section 5: The Ocean Literacy

***Cognitive domain***

22. **What do you know about the Ocean?**
    Use the Ocean Literacy to talk about what happens with the Ocean**.**
    **Do you know what's going on with the Ocean? With the Mediterranean? And the Toro reserve?**
    Where does your knowledge about it come from? **How do you update the information about it?**

23. Do you think The Ocean Literacy could be implemented in the diving centre performance?
24. What does the Ocean doing for you? (Ecosystem services)
25. **Have you ever taken part in surveys related to wildlife?** (organization-frequency-role)

***Interpretation on board***

26. Which kind of messages do you deliver to tourists? ('T' thematic)
27. Which kind of questions do tourists usually ask you during the trip? In particular spots? Information seeking.
28. What do you think it is the most common perception that tourists have about diving in this diving area?

# Appendix 4: Tourist´s Interview. First draft
# Pre-dive

## Section 1: About the tourist

***Sociodemographic characteristics***

*Interviewer please note **gender**.*

**1.** 1 ☐ Female 2 ☐ Male

**2.** Where are you from? Where do you normally live?

1 Country …… City ……

2☐ Close to the coast? Where? ……..

**3. How old are you? Note the age bracket**

1 ☐ 16-24 2 ☐ 25-34 3 ☐ 35-44 4 ☐ 45-54 5 ☐ 55-64

6 ☐ 65+ 7 ☐ Prefer not to say

**4. Education background. Indicate the highest educational attainment**

1 ☐ Primary school 2 ☐ Secondary school

3 ☐ College qualification 4 ☐ University

5 ☐ Postgraduate degree 6☐ Other State …….

**Title** ……

**5. What is your current employment status?**

1 ☐ Employed 2 ☐ Self-employed 3 ☐ Retired

4 ☐ Student 5 ☐ Home maker 6 ☐ Unemployed

7 ☐ Other Please state ……

**If you have a job, is it related to the sea somehow?**

**6. Do you consider yourself to be an amateur diver or expert diver?** How many dives?

## Section 2: Diving experience

***Motivations and psychological characteristics***

7. **Why did you decide to come here, to Mallorca?**
8. **Why did you decide to go diving during your holiday?** And why with this particular centre? Which trip are you taking today? (Operator and length)
9. **Have you ever been diving before? Where and when?**
   Where was your favourite dive or snorkel? And can you tell me why it was special? What was your favourite part of diving? And why? ('E' Enjoyable)
10. **What are your expectations for this dive?**

## Section 3: Environmental concern

***Normative domain***

11. **a. Use the NEP Scale to talk about their environmental concern.** Choose three of them and tell me what you think about them.
    **b. Are you concerned about the marine environment? About which issue?**
12. **What is your environmental behaviour during your daily routine at home?** Any pro-environmental action? Specifically related the Ocean? Member of any NGO or Association?

## Section 4: Relationship with the Ocean

***Emotional domain***

13. **What does Ocean mean to you?** How is the Ocean for you? (shallow- deep ecology)

## Section 5: The Ocean Literacy

***Cognitive domain***

14. **What do you know about the Ocean?**
    Use The Ocean Literacy to talk about what happens with the Ocean (locally and globally).
    **Do you know what's going on with the Ocean?** With the Mediterranean? Specific diving zone? Where does your knowledge about it come from? **How do you update the information about it?**
15. **What does the Ocean do for you?** (Ecosystem services).

## On board

a. How did you feel? Did you like it? Why?

Ask permission to **take a pic just after their first immersion** in the openwater courses and Discovery Scuba Diving (DSD).

b. **Check if they are doing a search of information behaviour** (through observation and asking later to the member of the crew about the type of questions were done).

## Post dive

### Section 1: Connecting through senses: personal link

***Emotional domain***

1. **How did you feel under water?** What is your first impression? How do you see yourself underwater? (eco-self notion)
2. **Did you like it?** Which parts did you like more? **What was your favourite part of diving? And the worst part?** What was the highlight of the dive for you? ('E' Enjoyable).
3. **What did you do down there? What did you see?**
4. **Has your image of the Ocean changed? Do you think your feelings towards the Ocean have changed today?** How is the Ocean down there? Did you expect it to be like that?
5. **Can you compare this diving experience with others?** Better or worse? **Would you recommend this experience to other people?** If yes, what kind of things would you like to mention?

### Section 2: Knowledge Explorers

***Cognitive domain***

6. **What did you learn about the marine ecosystem?** Did you learn something new? What's going on with the Ocean? With the Mediterranean? With this diving zone?
   **Did you ask them for any specific piece of information?** (Seeking information).
7. **How did you feel about the guide's commentary today? (Knowledgeable/ enthusiastic?)** Did it clarify any misunderstandings or stereotypes about the Ocean?

## Section 3: Citizen Science

***Normative domain***

8. **Do you think that your attitude towards the Ocean has changed?** (personal norms: feeling of moral obligations)
9. **What can you do for the Ocean from now on?** How do you think you can become an ocean citizen?

# Appendix 5: Tourist´s Interview. Final version

**Changes from pilot project**

The first change was to include a direct question about the connection with the ocean in the first section. ***How is your relationship with the Ocean?*** (n.6). In this way, the core interest of the study was guaranteed, independently of the sociodemographic characteristics. At the same time, the question led the interview to the central focus, the four dimension of the place attachment (Kyle et al., 2004). The following question about the reason to become a diver was revealed as a good bridge to connect the both sections and to introduce the next section, the diving experience (n. 7). Concerning the division between amateur and expert diver - the question number 6 in the former version - it was removed because the respondents showed difficulties to answer it. Therefore, the number of dives was consulted to them during the question number 10. With this information, the type of diver could be identified. Another question removed was the one related to the expectations. Taking into account that the interview had to be made after the dive, the previous thoughts about the diving experience could not possibly be assessed. As a replacement, the new approach was focused on their suggestions. ***Would you recommend this experience to other people? If yes, what kind of things would you like to mention?*** (n. 11) In this way, the diver's satisfaction could be ascertained.

The next significant change was to take the section related to the relationship with the Ocean and move it to the section 3. The life journey promoted by the interview demanded to talk about this section in early stages of the interview. At the same time, the emotional domain needed to be extended with two another questions more. The number 12 was taken from the post dive part of the former version. ***How did you feel under water? What is your first impression? How do you see yourself underwater? (eco-self-notion).*** Another attempt to the intention of knowing the expectation of the divers but this time focused on their image of the Ocean (depicted by the Mediterranean Sea). ***How is the Ocean down there? Did you expect it to be like that?*** (n. 13)

The cognitive domain was combined. The both sections pre and post were unified except the question number 17 which was a product of the testing period. ***What would you like to know through the diving experience?.*** This question had two purposes. First of all, it was the way to make the diver be a participant of the learning process. And secondly, the answer could be helpful information for future interpretation program in the diving performance. However, this question did not give good information. The reasons therefor were by the entire diving scenario. The subject area

about the Ocean Literacy was new for them within diving experience. Therefore, they usually didn't expect any specific information, except the species' list. For that reason, the interesting moment came when the following question was related to their knowledge about the Mediterranean Sea. This order of questions was aware to avoid the potential influence their answers if the order would have been the opposite. In addition, the interview got another a reflective moment when the most of them realised that they did not know or hardly received information about the sea where they had just dived. This moment generated a good exchange of thoughts about the importance to know about our seas. And it was the good threshold for the one of the key questions, number 19 which objective was to check the knowledge about the marine ecosystem services. ***What does the Ocean do for you?***.

To finish, in the environmental concern section the normative domain was depicted by three questions. As above section, it was a combination but where the last question of the previous version was removed. ***What can you do for the Ocean from now on? How do you think you can become an ocean citizen?.*** Taking into account that the diving experience was not significant enough to make an impact on the diver, this type of question was meaningless. The purpose of that question was finally covered by the question n. 21. ***What is your environmental behaviour during your daily routine at home?*** The debate generated in this section could throw interesting thoughts about the potential of the diving activity to develop the citizen science.

## On board

- How did you feel? Did you like it? Why?
- Ask permission to **take a pic**
- **Check if they are doing a search of information behaviour** (through observation and asking later to the member of the crew about the type of questions were done).

## Post dive

### Section 1: About the tourist

***Sociodemographic characteristics***

1. Note **gender:** Female/ Male

2. **Where are you from? Where do you normally live?**
   Country …… City ……
   ☐ Close to the coast? Where? ……..

3. **How old are you?**

4. **Education background. Indicate the highest educational attainment**
   ☐ Primary school ☐ Secondary school
   ☐ College qualification ☐ University
   ☐ Postgraduate degree ` ☐ Other State ……
   **Title** ……..

5. **What is your current employment status?**
   ☐ Employed ☐ Self-employed ☐ Retired
   ☐ Student ☐ Home maker ☐ Unemployed
   ☐ Other Please state ……
   **If you have a job, is it related to the sea somehow?**

6. How is your relationship with the Ocean?
7. How did you decide to become a diver?

## Section 2: Diving experience

***Motivations and psychological characteristics***

8. **Why did you decide to come here, to Mallorca?**
9. **Why did you decided to go diving during your holiday?** And why with this particular centre? Which trip are you taking today? (Operator and length)
10. **Have you ever been diving before? Where and when?** How many dives? Where was your favourite dive or snorkel? And can you tell me why it was special? What was your favourite part of diving? And why? ('E' Enjoyable).
11. **Would you recommend this experience to other people?** If yes, what kind of things would you like to mention?

## Section 3: Relationship with the Ocean

***Emotional domain***

12. **How did you feel under water?** What is your first impression? How do you see yourself underwater? (eco-self-notion)
13. **How is the Ocean down there?** Did you expect it to be like that?
14. **What does Ocean mean to you?** How is the Ocean for you? (shallow- deep ecology)

## Section 4: The Ocean Literacy

***Cognitive domain***

15. **What did you learn about the marine ecosystem?** Did you learn something new?
16. **Did you ask them for any specific piece of information?** (Seeking information). How did you feel about the guide's commentary today? (Knowledgeable/ enthusiastic?) Did it clarify any misunderstandings or stereotypes about the Ocean?
17. What would you like to know through the diving experience?
18. **Do you know what's going on with the Mediterranean?** With this diving zone?
19. **What does the Ocean do for you?** (Ecosystem services).

## Section 5: Environmental concern

***Normative domain***

20. **Do you consider yourself as an eco-friendly person?**
    **Are you concerned about the marine environment?** About which issue?
21. **What is your environmental behaviour during your daily routine at home?** Any pro-environmental action? Specifically related the Ocean? Member of any NGO or Association?
22. **Do you think that your attitude towards the Ocean has changed thanks to become a diver?** (personal norms: feeling of moral obligations)

# Appendix 6: Crew´s Interview - Post-season. Final version

## Section 1: Connecting through senses: personal link

***Emotional domain***

1. How has this season gone?
2. **How is the Ocean down there? Did you expect it like that? Has your image about the Ocean changed? Do you think your feelings towards Ocean have changed this season?**

## Section 2: Knowledge Explorers

***Cognitive domain***

3. **Did tourists ask for information about the Ocean or specific diving spot?** About what? **Information seekers.**
4. **Did you clarify any misunderstanding or stereotype about the Ocean for the tourists?** Which ones?
5. **Would you like to talk about any specific thing to tourists?**
6. **Did you learn something new from the tourists?**

## Section 3: Citizen Science

***Normative domain***

7. **What do you think we can do for the Ocean from now on? How do you think you can better encourage tourists to become ocean citizens?**

# Appendix 7: Structured observation

## *The design of structured observation template*

The first section is related to the structure of the message (1.1). It worked as 'quick look' about the characteristics (e.g.: attractive), foundations (science-based information) and intentions (commitment communication). The second guideline follows the communication item but in more structured way. The exploration and description of the Ocean Literacy in Mallorca waters follows the interpretation framework called TORE (1.2) developed by Sam Ham (1992). It is about a thematic, organised, relevant and enjoyable recreation experience. The third aspect delves deeper about the communication techniques (1.3). The group management; the facilitator role of the crew; and the means use during the dialogue with the divers are taken into account. The fourth section is the contribution for this new version. Here, the statements of the Ocean Literacy are included as references of the basic knowledge about the marine realm of dive experience. In light of this, the seven statements of this educational stream are the base. These headlines are enriched with information from the Ocean Literacy program (Change, 2015) and Smithsonian's Sant Ocean Hall (the Ocean Literacy, 2015). This latter institution develops public and educational programs based on The Ocean Literacy Principles. As a part of the knowledge provides by the diving experience, the particular characteristics of the diving spot or the Mediterranean are considered (1.4.2). Ecosystem services; quality status of the Mediterranean Sea; or the history of the area are the essential items to show the cognitive connection with the diving spot.

These four guidelines were the foundations to test the interpretation strategy of the diving experience. The last section was referred to a committed interpretation program: the ocean citizenship. As Sam Ham explains in his book (Ham, 2013), the interpretation has to have a purpose to make the difference. This normative block consisted of the environmental knowledge to be informed about the current situation (2.1) and behavioural knowledge to act on it (2.2). It was the way to connect the literacy strategy with a number of key sub- foci such as marine awareness; the information seeking; and best practices.

## *Structured observation template*

The following assessment tool is used to analyse the performance of diving tour through the information service perspective. To do this, each of guidelines is checked through indicators which are scored according to the three realisation levels.

**Accomplished:** √ **No accomplished: ×** **No information:** ∅

**Observer:** Olga Garcia

| ***Diving trip characteristics*** | | |
|---|---|---|
| **Day:** | **Dive centre:** | **Instructor/guide:** |
| **Boat:** | **Length:** | |
| **Diving spot:** | | **Crew:** |
| **Pax:** | **Gender:** | |
| **Nationalities:** | **Ages:** | |
| | | |
| **Activity:** | | |
| **Observations:** | | |

| *Interpretation Strategy* | | | *Cognitive domain* |
|---|---|---|---|
| **Guidelines** | **Indicators** | **Assessment** | **Observations** |
| 1.1 **Message's structure** | 1.1.1 Communication is simple and pleasant to reveal complex processes in understandable way, using **attractive, brief and clear messages**. | | |
| | 1.1.2 **Science-based information** is used. | | |
| | **1.1.3** The oral tradition or intangible heritage is included in the guide's speech: **empirical knowledge.** | | |
| | 1.1.4 The desire of protection and conservation is stimulated. **Commitment communication**. | | |
| **1.2 TORE framework** | 1.2.1 The **behaviour change** toward the environmental responsibility is fostered. **'T' of Thematic** | | |
| | **1.2.2** The **speech is structured**: it must be shown as a whole better than isolated pieces**. 'O' of Organizational** | | |
| | **1.2.3** The **relevant information** for the visitor is used in order to connect it with his/er life and to make the message understandable. **'R' of Relevant** | | |

| *Interpretation Strategy* | | | *Cognitive domain* |
|---|---|---|---|
| **Guidelines** | **Indicators** | **Assessment** | **Observations** |
| | **1.2.4** The experience is fun and pleasant for tourist. **'E' of Enjoyable** | | |
| **1.3 Communication techniques** | 1.3.1 **Inspirational and provocative communication** is given for increasing the knowledge and involving the visitor. | | |
| | **1.3.2 Good group management:** basic communication skills. | | |
| | 1.3.3 **Connection between guide and divers**: experience exchange and joint learning. | | |
| | 1.3.4 **Information is reinforced by** graphics, **means** and all kinds of gadgets during the entire diving experience. | | |
| | 1.3.5 Suitable use of the "**new technologies**". The interpretive means are relevant, without environmental impacts and in accordance with their effectiveness and efficiency. | | |

| *Interpretation Strategy* | | | | *Cognitive domain* |
|---|---|---|---|---|
| **Guidelines** | **Indicators** | | **Assessment** | **Observations** |
| **1.4 Knowledge** | **1.4.1 The Ocean Literacy** | 1.4.1.1 Essential Principles 1<br>The Earth has **one big ocean** with many features.<br>To inspire awe for how vast, diverse, and unexplored the ocean is, and for how fundamentally different it is from land.<br>The Earth is a planet with 71% of its surface covered by Oceans<br>A single Ocean with different names, the North Pacific, South Pacific, North Atlantic, South Atlantic, Indian, Southern, and Arctic.<br>A single Ocean which contains 97% of Earth's water.<br>The Ocean has the highest peaks, deepest valleys and flattest plains on Earth (The Ocean Literacy Campaign, 2013). | | |
| | | 1.4.1.2 Essential Principles 2<br>The ocean and life in the ocean **shape the features of Earth**.<br>To provide a unique and engaging experience that demonstrates how the ocean works and how it is interconnected with other global systems.<br>Due to its dimension, chemistry and strength, the ocean shapes continents through the drawing of their coasts (forces of waves) and depositions of land materials (origin of many beaches). | | |

| *Interpretation Strategy* | | | | *Cognitive domain* |
|---|---|---|---|---|
| **Guidelines** | **Indicators** | | **Assessment** | **Observations** |
| | | 1.4.1.3 Essential Principles 3<br>The ocean is a major **influence on weather and climate.**<br>To provide a unique and engaging experience that demonstrates how the ocean works and how it is interconnected with other global systems.<br>It is a story of flows, movements, sedimentations, extractions and dissolutions. The Atmosphere, Land and Ocean maintain a constant exchange of raw materials and energy. Only one interconnected circulation system is boosted by wind, tides, the force of Earth's rotation (Coriolis effect), and the Sun and water density differences. The changes into this system define the climate (since last 50,000 years) with strong impact on ecosystems at the same time. | | |
| | | 1.4.1.4 Essential Principles 4<br>The ocean **made Earth habitable**.<br>To demonstrate how life evolved in the ocean over billions of years and changed dramatically over time.<br>The most of the oxygen in the atmosphere originally comes from photosynthetic organisms in the ocean (Phytoplankton). Following the water column (feed chain), it is an environment which provide high level of nutrients for supporting a vast biodiversity as much 'inside' as 'outside' of its waters. | | |

| *Interpretation Strategy* | | | *Cognitive domain* | |
|---|---|---|---|---|
| **Guidelines** | **Indicators** | | **Assessment** | **Observations** |
| | | 1.4.1.5 Essential Principles 5<br>The ocean **supports a great diversity** of life and ecosystems.<br>To instil in tourists an awareness of the great diversity of ocean habitats and ocean life, and of how much is still being discovered.<br>The biodiversity provided by ocean ecosystems , due to abiotic factors such as oxygen, salinity, temperature, pH, light, nutrients, pressure, substrate, and circulation, has not followed a homogeneous distribution. As a result, the most abundant life on Earth is hosted in few regions of the ocean, while most of the ocean is 'empty' of life. In other words, it is about a vast living space with wide variety of unique ecosystems in where from the smallest living things, microbes, to the largest animal on Earth, blue whales have evolved in their waters. | | |

| *Interpretation Strategy* | | | | *Cognitive domain* |
|---|---|---|---|---|
| **Guidelines** | **Indicators** | | **Assessment** | **Observations** |
| | | 1.4.1.6 Essential Principles 6<br>The **ocean and humans** are inextricably **interconnected**.<br>To inspire and empower tourists to make the connection between the ocean and their daily lives, and to encourage them to continue exploring the ocean and to help conserve it.<br>Nature is the provider; shelter and guarantee for life of the human being on Earth. The biodiversity (from the marine realm as well) provides medicines, crops, fibres and organic products to humans. Specifically, Ocean is the main supplier of freshwater because of the most rain comes from the ocean. In turn, marine ecosystems generates services such as producing land; cleaning the water or creating oxygen. These multiple services has its impact on human health. | | |

| *Interpretation Strategy* | | | | *Cognitive domain* |
|---|---|---|---|---|
| **Guidelines** | **Indicators** | | **Assessment** | **Observations** |
| | | 1.4.1.7 Essential Principles 7<br>The ocean is **largely unexplored**.<br>To instil in tourists an awareness of the great diversity of ocean habitats and ocean life, and of how much is still being discovered.<br>To inform tourists about the exciting technologies and other approaches used by scientists and ocean explorers to uncover the ocean's mysteries.<br>To be more precise, according to the NOAA (2018), 'more than 95 percent of the underwater world remains unexplored'. As a datum to mention that animals from deep waters into Ocean are still much unknown for human beings<br>The marine cartographic is still in early stages with only a 5% registered. | | |
| | **1.4.2 Diving spot**<br>Introductory information in order to manage an adequate level of expectations and delivered information. | 1.4.2.1 The special features of **marine ecosystems** in the diving spot. | | |
| | | 1.4.2.2 The **socio-history** of the area (mainly its relationship with diving spot). | | |
| | | 1.4.2.3 The **ecosystem services** of the marine realm in the diving spot. | | |
| | | 1.4.2.4 The **quality status of the Mediterranean Sea** and diving spot. | | |

| *Ocean citizenship* | | | *Normative domain* |
|---|---|---|---|
| **Guidelines** | **Indicators** | **Assessment** | **Observations** |
| 2.1**Environmental information** | 2.1.1 Show the possible **marine environmental impacts from human activity**. | | |
| | 2.1.2 Show the possible **negative impacts of tourism (and diving).** | | |
| | 2.1.3 Introductory information about the interaction **between the community and diving spot.** | | |
| | **2.1.4 Conservation activities** in the area (Conservation NGOs; community associations and other activities) **Suggestions about the ways to be involved**: list of organizations working in the area, making donations to the Reserve; and others. | | |
| 2.2 The **how-know** information to **reduce their impact** on the marine ecosystem and the species involved into diving spot: | 2.2.1 The guide gives a brief about the suitable visitor's behaviour during the diving experience to avoid risky situations: diving techniques and normative briefing. | | |
| | 2.2.2 The guide manages appropriately the potential irresponsible behaviour and attempts of aggression to the species. | | |

Adaptation from García, 2013

# Appendix 8: Interviews of divers and staff during the fieldwork.

***Tourist divers***

| Number | Interviews | D/C/B/S | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| | | ***Diving centre (S)*** | | | | | | |
| *1* | **SS240516** | S | 3 males/ 3 females | 29-30 | 5 German + 1 French | University background: teachers, business management | Business men Teachers (all girls) | Only one girl had the open water. |
| *2* | **SB260516** | B | Male | 43 | Local (British) | Not academic background | Owner of Hotel in Port Soller | Baptism |
| *3* | **SD260516 (1)** | D | Male | | French | | Professional diver for 11 years and three years working in Polynesia Islands. | |
| *4* | **SD260516** | D | Female | 41 | German (Karlsruhe) | Not university background. | Assembly factory. | Advance |
| *5* | **SC260516** | C | Male | 19 | USA | Studying Metal Science in Germany, he would like to study electronic engineer | Student | Advance course, rescue and EFR. |
| *6* | **SD050616** | D | Female | | Local Cantabria | | Nurse | Subaquatic pic competition |
| *7* | **SD050616 (1)** | | Male | | Local | | Economic teacher | |
| *8* | **SC080616** | Co | Female | 22 | Italian (Calabria) | Tourism (Hospitality) | Hospitality | Doing Open Water |
| *9* | **SC080616 (1)** | Co | Female | | Dutch | | Receptionist | Open water |
| *10* | **SC020716** | C side m | Male | 29 | Local (Costa Brava) | Secondary School and passenger's crew | Professional diver | Open Water at 12 years old. Expert |
| *11* | **SD020716** | D | Female | 38 | Local (Valencia) | Management | Loss adjustor | Advance with 1000 dives |
| *12* | **SD120716 (1)** | D | Male | 48 | Sweden | Teaching and Science | Science teacher in Secondary school | Open Water in Sweden with 25 dives |
| *13* | **SD120716 (2)** | D | Male | 42 | Local (Tarragona) | Secondary School | Baker | Dive master (around 560 dives) and skipper |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *14* | **SD120716 (3)** | D | Male | 33 | Local (Madrid) living in London | law + two masters about Finances Market and European Law | Lawyer | Open Water a year ago. Advance with 37 dives |
| *15* | **SC040816** | Ca | Female | 34 | Local (Granada) | Bachelor in Teaching French as a second language | Hospitality (former worker of a Marina) | Open Water 3 years ago Now advance and nitrox course with 350 dives. 18 years of diving here |
| *16* | **SD040816** | D | Male | 47 | French (Marsella) living in Barcelona) | Economy and Marketing (Bachelors). | Fashion industry | Advance with over 350 dives. |
| *17* | **SC090816 (1)** | Ca | Female | 25 | Local (Palma) living in France | Odontology | Dentist | 4 baptisms Open Water a year ago with 20 dives. Now taking Advance course |
| *18* | **SC090816 (2)** | Ca | Male | 26 | French (Bayon) living in Geneva (Switzerland) | Hospitality | Hospitality | Open Water with 10 dives. Now taking Advance course |
| *19* | **SD090816 (1)** | D | Male | 45 | British | | | |
| *20* | **SD090816 (2)** | D | Female/ Male | | Local (Spanish) | | | |
| | | ***Diving centre (M)*** | | | | | | |
| *1* | **MD040616 (1)** | D | Female | 34 | Local (Madrid) | Medicine | Doctor | Open Water a year ago |
| *2* | **MD040616 (2)** | D | 2 males | | Local (Mallorc)<br><br>Local (Donosti, Valencia, Mallorca) | Engineering<br><br>Zoology | Tourism<br><br>Maritime rescue (at office) | Open water 24 years old. Instructor.<br>Since 18 years old. Instructor certificate at 23. |
| *3* | **MC070616** | Ca | Male | 21 | UK (Poole, close to the ocean) | Computer security | Computer security at the government | 12 dives |
| *4* | **MD070616** | D | Female/ Male | | Local (Spanish) | | Cook/ air company | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *5* | **MD070616 (1)** | D | Male | 27 | Swedish (living in Malta) | Bachelor of Science in Marine engineering | Boat engineer Swedish Royal Navy | PADI Rescuer |
| *6* | **MD070616 (2)** | D | Female<br>Male | 37<br>36 | UK (Manchester) living in the south of France | Tourism (catering)<br>Captain | Chef in a yacht<br>Captain in a yacht | Open water in Egypt. |
| *7* | **MD110616 (1)** | D | Male | 56 | Local (Ceuta) living in Palma | Secondary school | Plumber | Accident diving when a child. Returned to dive at 53 years old. Now he finished the nitro course |
| *8* | **MD110616 (2)** | D | Female<br><br><br>Male | 35<br><br><br>46 | Local (Asturias) living in Mallorca<br>Local (Leon) living in Mallorca | PhD in Biochemical<br><br><br>Marketing and computer | Pharmaceutical lab<br><br><br>Marketing in an advertising enterprise. | She did the open water recently.<br><br>He has two stars = advance. And apnea. He is diving for 22 year |
| *9* | **MD110616 (3)** | D | Female | 54 | Local (Gernika) living in Mallorca | Medicine | Doctor | More than 500 dives |
| *10* | **MD110616 (4)** | D | 3 Males | 31<br>30<br>36 | Local (Barcelona) | Osteopath<br>Neurosurgeon<br>Enginery | Osteopath<br>Neurosurgeon<br>Engineer | One star in Galicia<br>Advance<br>Underwater fishing |
| *11* | **MD110616 (5)** | D | Male | 46 | Local (Palma) | technical computer( informatico) | working in technological business | 2015 advanced in ISURUS in Palma. |
| *12* | **MC130616 (1)**<br>**MC170616 (1)** | Co | Male | 42 | Local (Palma) | secondary studies (E.G.B) | timber production sector | Open water course |
| *13* | **MC130616 (2)**<br>**MC170616 (2)** | Co | Female | 32 | Local (Palma) | Computer engineering | Tourism | Open Water Course |
| *14* | **MC130616 (3)**<br>**MC170616 (5)** | Co | Male<br>Male | 52<br>20 | German<br>German | Business<br>1 year Tourism and 1 year Medicine | Tourism worker<br>Student | Open water course<br>Open water course |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *15* | **MC13/06/16 MC170616 (3)** | Co | Female | | Local | | English teacher | |
| *16* | **MC130616 (4)** | Co | Female | | Local (Mallorca) | | English teacher | DSD before open water course |
| *17* | **MD140616 (1)** | D | Male | 45 | Local (Palma) | He just finished Psychology | Nursery assistant | Dive master |
| *18* | **MC140616 (1)** | Co | Female | 31 | Local (Madrid) | Social worker | Social worker. Education. Cooperation. | Open water course |
| *19* | **MC140616 (2)** | Ca | Female | 22 | Local (Huesca) | Student | Marine Science with Major in Oceanographic | 6 dives before Advance Open Water |
| | **MC140616 (3)** | | Female | | Local (Cadiz) but here for 12 years | | Nursery assistant | Open water course |
| | **MC140616 (4)** | | Female | 45 | Local | | English teacher | Open water course |
| *20* | **MC170616 (4)** | Co | Female | | Local | | | Open Water course |
| *20* | **MC300616** | Co | Female | 18 | UK | Finishing High School | Student | Beginner. Open Water Course |
| *21* | **MD300616 (1)** | D | Male | 21 | UK (Birmingham) | Mechanic engineering | Design and project engineer | Open Water 3 years ago in UK<br>Advance |
| *22* | **MD300616 (2)** | D | Male | 52 | UK (Birmingham) | Electronic Engineering | Electronic design engineer | Advance |
| *23* | **MC010716 (1)** | Co | Male | 37 | Local (Palma de Mallorca) | Secondary school | Photographer | Baptism. Beginner |
| *24* | **MC010716 (2)** | Co | Male | 34 | Local (Madrid) | Pilot | Flight company. Pilot | Beginner |
| *25* | **MC010716 (3) MC130616 (1)** | Ca | Male | 46 | Local (Spanish) | High school | Policeman | In one year Open Water and Advance |
| *26* | **MD130716 (1)** | D | Male | 31 | Local (Palma) | Physics | Technical analyser in a Bank | 1 year ago the advanced. He got 90 dives so far. |
| *27* | **MD130716 (2)** | D | Male | 31 | Local (Sevilla) | Training courses | Aeronautical mechanic | He has only 6 or 7 dives. Open water 3 years ago. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *28* | **MD130716 (3)** | D | Female | 28 | Sweden, living in London | International business. | Fashion brand | Starting 15 years ago. She is a Rescue diver. She has 100 dives so far. |
| *29* | **MD130716 (4)** | D | Male | 21 | UK (London) | He is studying Natural Sciences (Physics) in Cambridge. | Student | Open Water in Turkey and Advance in UK. He has 39 dives so far |
| *30* | **MD140716 (1)** | D | Female | 35 | Local (Cordoba) living in Palma | Medicine | Doctor | 2009 Open Water (Zaragoza-Alicante) Advance (Almeria) Essential (Palma) Sidemount |
| *31* | **MC140716 (1)** | Co | Female | 30 | Kuwait living in Hong Kong | Accounting | Finance and Film making | Open Water Course |
| *32* | **MD140716 (2)** | D | Female | 37 | Local (Palma) | Studying Law | Post officer | Open water (23 years old) + 200 dives. Rescue |
| *33* | **MD140716 (3)** | D | 2 Females | 48 42 | Local (Barcelona) living in Mallorca | Secondary school | Real State workers | Open water with few dives. |
| *34* | **MD140716 (4)** | D | Male | 21 | Local () | Middle grade of Sports in Natural Environment. STCW: maritime security and Port skipper | Sailing trainer in Mar Balear | Doing the advance course |
| *35* | **MC230716 (1)** | Ca | Female | 32 | Local (Asturias) | Piano/Biologist | Piano teacher | Open Water 2013 and Advance 2016. 20 dives in Spain. |
| *36* | **MC230716 (2)** | Ca | Male | 47 | Russian (Moscow) | Yacht course | General manager | Open Water and Advance in less than 2 weeks. Beginner |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *38* | **MC230716 (3)** | Ca | Male | 50 | Italian | Business. Commercial school | Pharmaceutical company | Beginner. Like a year diving. |
| | ***Diving centre (P)*** | | | | | | | |
| *1* | **PD020616 (1)** | D | Female | 37 | German (Hamburg) | Business Science of Engineer | Engineer<br>No info | Expert. Second time in Mallorca. |
| *2* | **PD020616 (2)** | D | Female | 26 | German | Law | Lawyer | Open Water (few dives) |
| *3* | **PD020616 (3)** | D | Male | 33 | German | Engineering | Engineer | Expert. 9 years of experience. Second time in Mallorca. |
| *4* | **PD020616 (4)** | D | Male | | Local(Mall) | | Hospitality | 19 years diving |
| *5* | **PD020616** | D | Male | 26 | Local (Mall) | Audiovisual communication | Unemployed | Open water? Beginner |
| *6* | **PD030616 (1)** | D | Male | 38 | Swiss/Spanish | Economics | Computer technician | Instructor |
| *7* | **PD030616 (2)** | D | Female | 29 | German Swiss | No academic background | Animal caring | Open water 2013. |
| *8* | **PD030616 (3)** | D | Female | 28 | French | Master Communication Business | Advertising | First diving in Cuba 3 years ago. Open water in 2015 |
| *9* | **PD030616 (4)** | D | Female | 26 | California (coast) USA | Education | Teacher | Open water. Carolina Island in 2011. 40 dives. Caribbean |
| *10* | **PD030616 (5)** | D | Female | 24 | Local (Sp-Mall) | Audiovisual communication | Set a photographer shop. Past: diving shop | Nov 2015 Dominican Republic. Advanced Certification. Expert |
| *11* | **PD030616 (6)** | D | Male | 58 | UK | Not academic background. No info | Construction. British builder | 78 dives. Refreshment after 4 years without. |
| *12* | **PD240616 (1)** | D | Female | 44 | Catalana/UK/Mallorca | No academic background | Artist/ designer sea topic<br>Past: teacher, ferries, language | 26 years ago. Advance certification. 1000 dives. Mallorca, Menorca and Hierro. |
| *13* | **PD240616 (2)** | D | Male | 30 | German/ lakes | Engineering | Civil Engineer | Open water in Berlin. Second dive. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *14* | **PD240616 (3)** | D | Male | 30 | German/ Berlin | Computer Science | Computer scientist | Open water in Germany in the winter in a lake. Australia, Hawaii, Portugal |
| *15* | **PD240616 (4)** | D | Male | 30 | Local/ German | Mecatronics | Autists, sound isolation devices. Devices connected to the brain. | Learned in Germany at 8 years old from his uncle. Advanced Certification 2011. Less than 100 dives |
| *16* | **PC020616** | Co | Male | 26 | Local (Mallorca) | Audiovisual Communication | No info | Open wáter course |
| *17* | **PC250616 (1)** | Co | Male | 21 | Local (Inca) | Bachelor of Physical-sport Education in Natural Environment | Shoe industry | Beginner (snorkel) |
| *18* | **PC250616 (2) 1,2** | Co | Male<br>Female | 36<br>29 | Pollensa | Law<br>Nursing | Lawyer<br>Nurse | Beginner<br>Beginner |
| *19* | **PC250616 (3)** | Co | Male | 21 | UK (London) | Industry | No info | Beginner |
| *20* | **PC210716 (1)** | Co | Female | 20 | Italy (coast) | TV and Film | None | Beginner |
| *21* | **PC210716 (2)** | Co | Female | 19 | UK (York) | TV and Film | No info | Beginner |
| *22* | **PC210716 (3)** | Co | Female | 19 | UK (No coast) | TV and Film | No info | Beginner |
| *23* | **PC210716 (4)** | Co | Female | 20 | UK (Yorkshire) | TV and Film | None | Beginner |
| *24* | **PC210716 (5)** | Co | Male | 21 | UK (Preston) | TV and Film | No info | Beginner |
| *25* | **PC210716 (6)** | Co | Male | 32 | UK (Manchester) | TV and Film | Extra work on TV, Previous: musical technology, waiter | Beginner |
| *26* | **PB100916 (1)** | B | Female | 33 | Local (Sp) | Communication | Producer of TV | |
| *27* | **PB100916 (2)** | B | Female | 33 | Local (Sp) | Arts | Artist | |

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***Mallorca, 2016***

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| | | ***Diving centre (S)*** | | | | | | |
| *1* | **SS280416** | Skipper | Male | 36 | Barcelona living in Soller for the last 12 years | High School (Science-Tech)<br>Circus school in Barcelona for 2 years | Circus<br>Cozumel (diving guide)<br>Yacht (crew)<br>Construction underwater (installing pipes) | Snorkelling when child<br>14 years old Open Water (1 star)<br>Professional diving (deep tech) |
| *2* | **ST040516** | Trainee - DM | Male | 28 | Sevilla<br>Valencia with 2 years old<br>Madrid with 4 years old<br>Living in Soller on a boat | 3 year and a half of Industrial engineering<br>2015 Bachelor of Tourism<br>PER (Sailing)<br>Harbor Master<br>Yachts skipper | Human Resources in a hotel<br>Hospitality (events planning) | 2014 First experience diving. Open Water in Madrid and Ter<br>7 months in Mallorca<br>Advance now on training to get the Dive Master. |
| *3* | **ST260416** | Trainee - DM | Male | 24 | Palma de Mallorca | Secondary education<br>National tennis coach | Cleaning boats in Charters' company<br>Diving centre | On Dive Master training |
| *4* | **SI260416** | Instructor | Female | 28 | France (close to Paris) | Tourism and business | Diving centre: seasonal in Vietnam (2), Thailand<br>Tourism (booking) in France. | MSDT (Master Scuba diving trainer). Specialities: night, drift, photo, deep, navigation) |

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| *5* | **SI210416** | Instructor | Male | 30 | Valencia (inland but 25 min from the sea) | 2010 Bachelor of Marine Sciences<br>2012 Master of geologic and geothermic resources<br>On year and a half of PhD | Diving Centre in Canarias 2 seasons (one with internship to become a Dive Master and instructor. Second season working as instructor) | Open Water during his bachelor.<br>Dive Master and instructor during the Masters. |
| *6* | **SM040516** | Manager/Instructor | Male | 32 | Local (Asturias-coast) living in Palma | Lifeguard instructor<br>First Aid instructor<br>Bachelor of Tourism<br>Catering | Working on fishing business.<br>9 years as a lifeguard<br>Hospitality<br>1 year and a half as a dive master<br>5 years as an instructor | Open water and dive master in Asturias<br>Indonesia recreational<br>Instructor in the Great Barrier Reef Australia<br>Thailand, Malaysia |
| | | ***Diving centre (M)*** | | | | | | |
| *1* | **MT300616** | Trainee - DM | Male | 19 | Local (Palma) | First year of Physiotherapy | Studying | Snorkelling<br>On Dive Master training |
| *2* | **MP140716** | Coordinator | Female | 30 | Local | Bachelor of Tourism | Tourism department in the City Hall of Palma<br>Conference Centre in Palma<br>Ground hostess<br>5 years working in the diving centre | All the training until Rescue in 4 years and a half |

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| *3* | **MI090516** | Instructor | Male | 44 | Cuba (Cienfuegos-coast)<br>France (5 months)<br>Living in Palma for over 9 years | Bachelor of Languages (German)<br>Boat skipper | Professional swimmer<br>Hospitality<br>Rent cars<br>Road maintenance<br>8 years as a guide and instructor | Hobbies: Apnea, fishing underwater in Cuba<br>Open Water in Palma<br>All training with Casco Antiguo in a short period.<br>Instructor with specialisations |
| *4* | **MI070616** | Instructor/ MA | Female | 43 | Local (Palma) | 2010 Bachelor of Biology | Shop assistant<br>Adventure sports guide<br>Animal care and guide in Private Natural Reserve | 2011 Open Water and Advance.<br>Diving as a hobby for a while<br>Dive Master and then instructor everything in Mar Balear. |
| *5* | **MT160616** | Trainee - DM | Male | 21 | Local (Mallorca-inland) | Training for fire fighter public servant exams PER | On internship to become Dive Master | Training on Dive Master with 35 dives<br>He wants to be instructor |
| *6* | **MI090516** | **Instructor/** Skipper | Male | 33 | Local (Palma) | 1 year of Tourism<br>Boat Skipper | Hospitality (maintenance)<br>Oscar's brother | Open water as a hobby for several years<br>Become an instructor when Oscar set the Diving centre. |
| *7* | **MI090516** | Instructor | Male | 34 | Local (Madrid) living in Palma | Bachelor of Environmental Sciences<br>Worked with marine turtles in Cabo Verde<br>Professional diver<br>Skipper | Instructor in the diving centre Mar Balear | 3 seasons as instructor.<br>Dive Master in Thailand.<br>All diving certifications during his bachelor |

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| *8* | **MP110616** | Receptionist | Female | 19 | Local (Mallorca) (mom from Holland) | Medium grade of technical studies of Natural Science - Guide (communication skills)<br>Basketball coach (to kids to 13 years old) | Studying high grade of technical studies about sports in natural environment | 16 years old Open Water.<br>First 4-5 times very scared. |
| *9* | **MT170616** | Trainee – Sailing (skipper) | Male | 20 | Local (Palma) | Technician on physical and sport activities on Natural environment<br>Leisure time monitor for youth | On training for sailing.<br>Working on Mar Balear Diving Centre | Advance.<br>Dive Master and Rescue water training, no theory. |
| *10* | **MS300616** | Skipper | Male | 28 | Local (Madrid) living in Mallorca since 4 years old | Naval mechanic<br>Electrician<br>Designer | Studying Bachelor of English Language<br>Working on Mar Balear Diving Centre | Apnea<br>All the training up to Dive Master with Palma Activa |
| *11* | **MT150616** | Trainee - DM | Female | 19 | Local (Calvia, inland of the region) | Scientific high school. | Student | She does not have the open water certificate. On training to become a dive master |
| *12* | **Md010716** | Dive Master | Female | 18 | Local (Palma) (Parents from UK) | Gymnast (Compete but as a hobby) | Graphic designer in a family business. | 14 years old Open Water<br>16 years old Advance<br>17 years old Rescue<br>18 years old Dive Master<br>140 dives<br>All training with Mar Balear<br>Both parents divers. |

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| *13* | **MI160616** | Instructor | Male | No | No info | No info | No info | No info |
| *14* | **MM210916** | **Manager/ Instructor** | Male | | Spanish | No info | Instructor/manager | Wide experience around the World |
| *15* | **MI050916** | Instructor/ guide | Male | 32 | Local (Palma) Lived in Barcelona, Madrid. | Bachelor of Audiovisual Communication. Master of Film Production | 4 years as instructor in Mexico and Palma | Open water in Palma 2012 Internship in Mexico to become Dive Master 2013 Instructor in Lanzarote |
| *16* | **MT140916 (1)** | Trainee – DM post | Male | 20 | German (Latin American roots) | No info | No info | Summer 2016 Open water All the training to Dive Master in 2 months |
| *17* | **MT140916 (2)** | Trainee – DM pre-post | Male | 25 | Local (Palma) | Chef and maitre | Hospitality: Chef | Snorkelling Summer 2015 Open Water Nov 2015 Advance Summer 2016 Dive Master on training |
| | | | | | | | | |
| | ***Diving centre (P)*** | | | | | | | |
| *1* | **PI240616** | Instructor | Male | 27 | Chile (Santiago) With 14 years old he moved to Barcelona | Fish farm technician (Diving course) | Diving Centre in Tanzania (All courses to Dive Master) Waiter Construction | 2010 Dive Master 2015 Instructor in Action Sport |
| *2* | **PI020616** | Instructor | Female | 31 | UK Lived in USA and 3 years living in Mallorca | Sociology BA | No info | 2010 Open Water (Groupon) Instructor |

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| *3* | **Pd230616** | Dive Master | Male | 25 | German (Inland) | Biology focused on genetics (don't like working on a lab)<br>Thinking of doing a Master on Marine biology | Hobbies: guitar, sports<br>8 months in Asia<br>Bachelor in Germany<br>Social services in Germany in a lab.<br>6 months travelling in South America and 2 months taking the dive master courses. | Snorkelling during family holidays<br>Documentaries<br>Open Water in Asia.<br>Dive Master in South America. |
| *4* | **PI010616** | Instructor | Male | 32 | French (Paris) with Latin American roots (Buenos Aires - 6 years). Mar del Plata and Costa Brava. | Studying Law. | Construction<br>Hospitality<br>Instructor | 12 years old first experience.<br>14 years old Open water (CMAS).<br>Medes islands every summer (3-5).<br>5 years ago Dive Master in Action Sport<br>Instructor in Mar Balear. |
| *5* | **PM210516** | Manager/ Instructor | Male | 27 | Local | Film making | Film making<br>Diving instructor | Expert |
| *6* | **PS010616** | Skipper | Male | | No recording | No recording | No recording | No recording |
| *7* | **PT190816** | Trainee | Male | 27 | British (London) living in Mallorca | Bachelor in Environmental Science | Ski resort and Sailing in Greece<br>Malaysia: educational program in eco fieldtrips.<br>Recruitment department.<br>Postman. | 13 years old first experience on diving (his dad) |

## *Staff*

| *Number* | Code | Role | Gender | Age | Nationality | Studies | Job | Beginner/Expert |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Seychelles Island: conservation in water and on land. | |
| *8* | **PT190816** | Trainee | Female | 26 | British (Kent)/ Norway/ Houston (US)/? Yakarta/ Tunisia/Singapore | Biology and Psychology, Masters in Animal behaviour | Singapore – environmental trips for international students.<br>Training to become a Dive Master | Open water 12 years old in Yakarta at school.<br>Advance 3 years after OWC.<br>Rescue 2014 |
| *9* | **PI180816** | Instructor | Female | 22 | German (close to the coast with lakes) | Medicine student | Work in a factory<br>2012 volunteering in Zambia<br>Student<br>Instructor | Diving with 15 in Germany in lakes.<br>Dream: diving in the Great Barrier Reef. She saved money and she to Australia and internship in Dive Master.<br>Instructor in Fiji. |
| | ***Freelances*** | | | | | | | |
| | **FI040516** | Side-mount instructor | male | | Spanish | No info | No info | Expert |

***32 (48)***

***Mallorca, 2016***

## Appendix 9: Consent sheet for tourists interviews

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# Ocean literacy through recreational diving

***Tourist´s Interview***

Aberystwyth University (United Kingdom) and some dive centres are conducting a research study regarding visitors' experience of diving trips in Mallorca.

The Ocean is of great importance in ecological (climate regulation, biodiversity) and societal (economic activities, environmental services, and residence) terms. A healthy ocean is therefore fundamental to achieving global sustainability. This will, however require a more informed ocean literacy strategy to be adopted. Providing better understanding will have important outcomes for local businesses as well as global societies and contribute towards this goal.

In this sense, this project seeks to examine the potential for signature underwater experiences to influence behaviour change and individual understanding of the oceans. To achieve this aim, working with divers is required.

Therefore, we would like to talk to you before and after the trip. Your participation is voluntary and you may withdraw from the research at any time. All results are anonymous. This information will not be passed on to other parties or stored by the operators at the end of the study. If you have any questions regarding the research please contact Olga Garcia olg5@aber.ac.uk

**Thank you so much for your participation!**

# Appendix 10: Categories of the fieldwork

| | Tourism |
|---|---|
| **Dynamic** | Tourism ground and dynamics |

| | Diving industry |
|---|---|
| **Sport foundation** | Sporty approach of diving activity |
| **Diving performance** | The performance of the diving staff in diving activity |
| **Diving offer** | Diving offer as industry |
| **Tourist profile** | Profile of tourist-divers in Mallorca |
| **Staff role** | Role of staff according to the industry |
| **Staff training** | The training of staff in the industry |
| **Cognitive domain** | Knowledge developed by the diving industry |
| **Ocean Literacy** | Cognitive domain related to the local sea developed by the industry |
| **Interpretation** | Interpretation in diving |
| **Marketing** | Marketing about diving |
| **Marine environment** | Marine ecosystem notion showed by the diving industry |
| **Emotional domain** | Emotional bond with the Ocean/ Med associated to the diving industry |
| **Normative domain** | Environmental Responsible Behaviours promoted by the industry |
| **Ocean citizenship** | Individual/ collective actions in favour of the Ocean developed by the industry |
| **Finance, legal issues and rules** | Legal and figure of diving activity |
| **Stakeholders** | The vision of the industry about the performance of the stakeholders involved in diving activity (in Mallorca) |

| Diving performance | |
|---|---|
| **Diving offer** | Diving offer of diving centres |
| **Staff profile** | Profile of staff who works in diving centres |
| **Staff role** | Role of staff according to ones work in diving centres |
| **Staff motivation** | Motivation of staff who works in diving centres |
| **Staff training** | The training of staff who works in diving centres |
| **Cognitive domain** | Knowledge developed by the staff |
| **Ocean Literacy** | The current OL in the diving experience by the staff |
| **Interpretation** | Interpretation associated to the diving experience |
| **Emotional domain** | Emotional bond with the Ocean/ the Med generated during the diving experience by the staff |
| **Normative domain** | Environmental Responsible Behaviours promoted by the staff (es la scala del NEP) |
| **Ocean citizenship** | The current individual/ collective actions in favour of the Ocean promoted by the staff |

| Diving experience | |
|---|---|
| **Tourist profile** | Profile of tourist-divers in the diving centres |
| **Tourist satisfaction** | Satisfaction of tourist divers for diving |
| **Tourist expectation** | Expectations related to diving of tourist divers |
| **Tourist motivation** | Motivations of tourist divers for diving |
| **Cognitive domain** | Knowledge factor in the diving activity |
| **Ocean Literacy** | Knowledge related to the local spot through the diving activity |
| **Emotional domain** | Emotional bond with the Ocean/ Med associated to the diving activity |
| **Normative domain** | Environmental Responsible Behaviours by tourist divers |
| **Ocean citizenship** | Individual/ collective actions in favour of the Ocean through the diving activity (Activist) |

| Marine environment | |
|---|---|
| **Diving experience** | Impact on diving experience due to the quality of marine ecosystem |
| **Ocean Literacy** | The Ocean Literacy related to the MED |
| **Marine pollution** | Marine pollution in Mallorca waters |
| **Marine reserves** | Marine reserves in Mallorca |

| Ocean Literacy | |
|---|---|
| **Historical background** | History of Mallorca related to its waters |
| **Cognitive domain** | Knowledge about the local spot |
| **Interpretation** | Interpretation skills associated to Ocean Literacy |
| **Marine environment** | Marine ecosystem notion in the knowledge about the local spot |
| **Emotional domain** | Emotional bond with the Ocean/ the Med through the knowledge about the local spot |

| **Stakeholders** * | |
|---|---|
| **Profile** | Profile of stakeholders (or potentially) involved in diving activity |
| **Tourism** | Tourism dynamics associated to the interest of stakeholders |
| **Diving industry** | The involvement of stakeholders in the diving activity |
| **Diving offer** | Diving offer structure (International certifiers) |
| **Education training** | Education training developed by stakeholders |
| **Cognitive domain** | Knowledge about Ocean or The MED developed by stakeholders (existing and future) |
| **Ocean Literacy** | Knowledge related to the local spot developed by stakeholders (existing and future) |
| **Outreach** | Outreach programs developed by stakeholders |
| **Marine environment** | Marine ecosystem issues treated by stakeholders |
| **Ocean citizenship** | The individual/ collective actions in favour of the Ocean promoted by the stakeholders (existing and future) |

(*) certifiers; professional association; science; NGO's; and government.

# Appendix 11: Examples of the three domains.

To follow the practitioner spirit of this research study, the following appendix gathers three examples of each domain of the model to make it feasible in short term. The emotional domain is illustrated by the thematic dive called '*The silences of the sea'* is developed, closely linked with the increased trend towards spirituality (e.g:, subaquatic yoga). The cognitive domain is explored through the old stories about sea monsters, - called '*Scary tales, the Med of ancients'-,* in order to rid of the ancient fear of the sea with knowledge. And the normative domain is fostered with the suitable read of sea indicators of the climate change, named *'Grey prints in the Med*'.

**Emotional domain** ***The silences of the sea***

Ocean as inspiration source, knowledge source and spiritual source (your own breathing). Listening deeply is a channel to connect to the Nature. Paraphrasing the Dreamtime of Australian aboriginals, when you are capable to listen deeply, it is when you listen the Nature. When you can listen to your breathing is when you are reaching this deep level (Daridiri).

The inner characteristics of the diving activity are a suitable ground for these somatic experiences. When you dive, listening to breathing is easy although it isn't the main purpose. Speaking, the most distractive act during communication is not allowed, therefore, it is semi-compulsory to listen. Indeed, it is probably one of few occasions to only listen to the surroundings. For supporters of the deep ecology, this intimate experience fosters the multi-sensory seascape, showing the spiritual wellbeing as an ecosystem service of the seas. In conclusion, it can give the opportunity to begin the transition towards ecoturism ( from soft to hard version).

In addition, this somatic experience can be enriched with a narrative (briefing or debriefing) about our ancestral connection with the seas (principle n.6 of Ocean Literacy) and our willingness to explore the unknown blue space (principle n.7 of Ocean Literacy).

## Data sheet

**Topic:** The multi-sensory seascape. Embodiment
**Extra bonus:** The reduction of the feeling of vulnerability because of better technique and deeper connection with the surroundings.
**Main resource:** the seascape
**OL principle:** 6 & 7

**Ecosystem Services:** Spiritual and Cultural wellbeing (Cultural services).
**Interpretation mean:** Techniques of diving performance (buoyancy)
**Tourism target:** tourist – divers and locals
**Season:** shoulder season (less divers, better experience)

## Cognitive domain — *Scary tales, the Med of ancients*

As the principle 5 of Ocean Literacy stream states, the ocean is a reservoir of *'unique examples of life cycles, adaptations, and important relationships among organisms (symbiosis, predator-prey dynamics, and energy transfer)*' (Ocean Literacy Campaign, 2013:9). This is a flourishing ground for imagination reflected in the production of blue humanities. That 'figurative place' generates strong emotional bonds because of the power of imagination which can create beautiful scenes to connect with the sense of the place. To that end, the diving performance has to work to develop these images in the mind of the diver before jumping into the water (by briefing) and enrich it later (through debriefing).

The present thematic dive is suitable for the nocturnal immersion. The night dive is different. The consulted experienced divers highlight that they learn that the ecosystem changes depending on the daylight time and the season. Therefore, the same place can be, different, and every spot, special. '*It is the magic of the diving',* - according to the interviewed veterans -, and one of reasons to keep interested in diving for a long time. The senses intensify; the vulnerability is shown; and the curiosity comes back. It is a stimulating ground to implement the Ocean Literacy approach by using sailor's stories about mysterious nocturnal creatures. The principle 7 about an unknown realm is the backdrop for this type of diving offering, with the contribution of the principle 5 related to the biodiversity. The outcomes can be multiples from the discovery of a particular biodiversity, passing for the clarification of misunderstandings, to the treatment of sea fear. During the interviews, it was confirmed that the fear related to the sea is based on ignorance and imagination. As a result, being witness of the marine realm can help to develop more positive bond with the sea.

### Data sheet

**Topic:** Human stories: the power of the imagination to connect.
**Extra bonus:** The reduction of the feeling of vulnerability.
**Main resource:** Blue humanities: the nocturnal biodiversity & 'figurative' sea animals
**OL principle:** 5, 6 & 7
**Ecosystem Services:** Spiritual and Cultural wellbeing (Cultural services).

**Interpretation mean:** The script of diving performance and storytellers techniques.
**Tourism target:** tourist – divers and locals
**Season:** shoulder & peak season

## Normative domain — *Grey prints in the Med*

The changes wrought by climate change are recognised when the baseline is known. But without these previous insights, the transformation cannot be identified, catching the attention, and awaking the interest to revert it. The frequent divers can have the opportunity to build this knowledge and becoming the speakers for the marine issues. But without proper knowledge is like diving into an unknown world where the aesthetic factor is the only one discovered. To avoid the misunderstanding provoked by human beauty notion, the diving offer for locals can be the option due to mayor time available.

Mallorca is a karst, the favourable scenario to this specific thematic option which is approached from the chemical and physical footprint which is left in the sea geology. The observation is the technique; therefore, it must be the core of the performance with development of skills to interpret the geological layers beneath the sea.

In addition, within a strategy to promote the diving activity in unfamiliar sectors, the diving centres can design offers to professions such as filmmakers with the recording of sea changes or documenting new characters of the sea like the plastics.

### Data sheet

**Topic:** The sea is rising as result of the Climate Change. Observations of the change.
**Extra bonus:** The importance of the geology in island inhabitants.
**Main resource:** geology; physical & chemical factors
**OL principle:** 3
**Ecosystem Services:** Supporting, Provisioning, Regulating & Cultural services.
**Interpretation mean:** Audio – visual techniques.
**Target:** local divers as way to develop the activist spirit in the local diving community.
**Season:** shoulder season.